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FOR TABLE OF CONTENTS SEE PAGE II.

REGISTERED C. 6

THE INDIAN LANCET.

A Weekly Journal of Medicine, Surgery Public Health and of General Medical Intelligence.

Edited by RUDOLPH MONNIER M.B., M.S., Edin.

Vol. XXXI.] CALCUTTA, MONDAY, FEBRUARY 17th, 1908. [No. 7

SAUNDERS

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Vol. XXXI.] CALCUTTA, MONDAY, FEBRUARY 17th, 1908. [No. 7

Contents.

ORIGINAL ARTICLES.

Intubation.—By P. D. Lipscomb, M.D. 263
Cardiac Dilatation Following Acute Infectious Diseases.—By J. Eddy Blake M.D. 265
Report of Cases of Unusual Derangement of the Knee Joint.—By A. R. Shands, M.D. 272
Renal Calculus Lodged in the Lower end of the Ureter.—By Follen Cabot, M.D. 276
The Action of Stimulants. 277

A MIRROR OF PRACTICE

Asiatic Cholera: Its Prevention and Treatment. 278
ANNOTATIONS. 279

LEADING ARTICLES.

Wonders in Surgery.—Unveiling of the Portrait of the Late Dr. L. Fernandez M.D. 281

CURRENT MEDICAL NEWS.

Inoculation and Plague. 28
Death in the Pan.—One Vital Warning. 286
SHORT ITEMS 286

CURRENT MEDICAL LITERATURE

MEDICINE 289
SURGERY 290
OBSTETRICS 290
PATHOLOGY 293
THERAPEUTICS 294

CORRESPONDENCE

The Nature of X-Rays.—Malaria in the Dooars. 297
The Pasteur Treatment.—The Pasteur Treatment.—Enemies of Sanitation... 298
A Missionary's Theory of Plague.—The Countess of Dufferin's Fund.—Madras Military Assistant Surgeon's Fund ... 301
Extermination of Rats. 302
REVIEWS OF BOOKS 305
GOVT. MED. NOTIFICATIONS ... 305

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INTUBATION.*

By P. D. Lipscomb, M.D.

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It was at this time that Dr. Joseph O'Dwyer began a series of experiments at the New York Foundling Hospital, the culmination of which has bequeathed to the world the greatest legacy ever given by American medicine.

The first case of laryngeal obstruction in diphtheria, successfully terminated by the use of an intubation tube, was treated by Dr. O'Dwyer in 1882—just one hundred years after the first case of which we have any record treated by tracheotomy for a similar condition.

After several years of study and experimentation with tubes of various shapes, the first of which was a bivalve tube, with tubes too long and tubes too short, all of which were made of metal, the present neatly-fitting, metal-lined, hard-rubber tube was perfected to conform perfectly to the anatomic structure of the larynx, made with the all-important retention swell, and practical intubation became an accomplished fact.

It would not be proper to close this brief sketch of the development of the intubation tube without a reference to the caliber tube which has to be used. This is a thin metal cylinder much shorter than the ordinary intubation tube, but long enough to reach below the cricoid stenosis. It has a shoulder about its upper extremity to prevent its falling into the larynx. The lumen of the tube is very large, to allow masses of membrane to pass through it. It may be used when it is believed that the introduction of the regular tube would push a loosened membrane down in front of itself. Since the tube has no retention swell the largest tube that can be crowded into the larynx must be used. On account of the great pressure the tube exerts on the larynx, it must be allowed to remain in only a few hours.

Indications for Intubation.—Theoretically, intubation should never be done except as a dernier resort. This is easily followed in institution work, but in private practice, where the conditions are very different, it often seems expedient to intubate earlier. In pre-antitoxin days, we are told, that there was little to be gained by postponing intubation in well marked cases of laryngeal diphtheria. At present, the undoubted influence of antitoxin justifies waiting for stenotic symptoms before resorting to operation. These become quite marked in the second stage of the disease—the stage of spasm—when the pseudo-membrane begins to form. The following symptoms may be noted: Characteristic voice, paroxysmal cough accompanied by cyanosis, harsh respiration, becoming whistling in character later. At this stage of stenosis all of the accessory muscles of respiration are brought into play. Well-marked retraction in the supra-clavicular region and epigastrium, exhaustion and failing pulse are noted. Children sit up suddenly with livid face, anxious expression and violent cough. The attacks recur at short intervals and suffocation is imminent. Intubation should be done at once. This stage may last from a few hours to a week, during which time the patient is struggling against violent dyspnœa and overwhelming toxæmia.

* Read before the Richmond Academy of Medicine and Surgery, February 12th, 1907.

Many of the cases of diphtheria in the tenement districts of the larger cities are not seen until the third stage is well under way. With these, treatment is unsatisfactory, and death usually occurs from one of the common complications, such as œdema of the glottis, bronchitis or broncho-pneumonia. Death in the second stage usually occurs from asphyxia.

Technique of the Operation.—Of this, little need be said, as any one who wishes to do intubating may easily familiarize himself with the operation. The two positions in which intubation is practised are sitting posture and the dorsal recumbent posture. My experience in the former is limited to the intubation of two adults at Bellevue Hospital, both well-developed men of good size. In this position it is practically impossible to hold the head still or to keep the patient from squirming almost out of reach. The dorsal position is always used at the Willard Parker Hospital, New York city.

I should like to call attention to the fact that the tube number which corresponds to the age of the child is not always the proper tube to use. One must be governed in the selection of the tube by the size of the child for the corresponding age. The characteristic sound made by the rush of air through the tube after the removal of the obturator is gratifying to the operator, because it proves that the tube has been properly placed in the larynx. One who is unfamiliar with the technique of the operation usually places the tube in the œsophagus. To be sure that the tube is in the larynx in moribund cases, the operator must rely entirely upon the sense of touch. Aimless prodding with the point of the tube in the hope that it may enter the larynx cannot be too strongly condemned. Irreparable damage may be done. It is better to make repeated short attempts than a single prolonged one if the tube is not properly placed at the first attempt.

Before one attempts to intubate the living subject he should have thorough training on the cadaver, and even then a vast difference will be found in intubating a struggling, terrified child where every moment lost in unsuccessful attempts diminishes chances of recovery.

I believe there is no other operation where the field is so obscure and inacessible when the demands upon the operator for speed and accuracy are so great and the rewards of efficiency so gratifying.

That tracheotomy is very undesirable and rarely indicated in laryngeal stenosis, I believe, is attested by my experience at Willard Parker Hospital, the city hospital for contagious diseases in New York city. In a continuous service of twelve months there we had only one tracheotomy. Post-mortem examination revealed a large tumor in the larynx, which explained the difficulties encountered in attempting intubation.

Serotherapy.—Pardon me for trespassing further upon your patience in presenting a few statistics by which I wish to call attention to the marked decrease in mortality in laryngeal diphtheria through the use of antitoxin.

It is not to be supposed that the only result accomplished by the use of antitoxin is the loosening and exfoliation of the diphtheritic membrane. This certainly seems to occur, but laryngoscopy during the third stage of laryngeal diphtheria and post-mortem examination show the absence of membrane in the larynx in not a few cases dying of suffocation. The paroxysmal nature of the attacks of dyspnœa seem to suggest marked nervous excitability of the constrictors of the larynx, believed to be due to the effect of the toxin of diphtheria. It is, therefore, the constitutional, as well as the local effects of the toxin that antitoxin is believed to combat.

The following figures, collected by Dr. Northrup, of New York, show that the mortality in laryngeal diphtheria requiring intubation has been reduced about 50 per cent. since the introduction of antitoxin. Antitoxin was first used by the Department of Health in New York in 1895, but it was a few years later before its use became general. It is found that antitoxin has greatly reduced the number of cases requiring intubation.

In this country 5,500 intubation cases before the use of antitoxin, show a mortality of 69 per cent. With the use of antitoxin the present mortality is about 27 per cent., a reduction of 65 per cent.

McCullom (Berlin City Hospital), before antitoxin, mortality, 83 per cent.; since antitoxin, 55 per cent. in 457 cases. Reduction of 35 per cent.

Manges reports mortality 66 per cent. before and 27 per cent. after antitoxin, a reduction of 60 per cent.

American Pediatric Society reports 25 per cent. mortality with the use of antitoxin.

All of the above figures refer to intubation cases before and after the use of antitoxin.

With the introduction of intubation by Dr. O'Dwyer, and the use of antitoxin, early and in sufficient quantities, laryngeal diphtheria has lost its terror, and the percentages of death has been greatly reduced.—The Virginia Medical Semi-Monthly.

CARDIAC DILATATION FOLLOWING ACUTE INFECTIOUS DISEASES.

By J. Eddy Blake, M.D.,

Concluded from Page, 220 Vol. XXXI.

And yet, cardiac dilatation after infectious fevers is by no means an uncommon condition. Several such cases have come under my own observation within the past two years; and I have known of several others were the symptoms pointed to dilatation, but the cases were not recognized as such by the physician in charge

I believe this to be of fairly frequent occurrence. The reasons are evident. Many cases show no particular symptom till the occurrence of an overstrain causes sudden dilatation and almost instantaneous death. Such are often diagnosed "heart failure," or even apoplexy. In many cases the symptoms develop slowly, and may be more or less marked by the symptoms of the primary disease. If the patient is lying quietly in bed, a marked dilatation may occur without the development of alarming symptoms to direct attention to the heart. When convalescence appears to be established, the weak pulse and impaired circulation are only too often attributed to general weakness; the heart is not examined, and the dilatation not discovered. Acute dilatation has been mistaken for pericarditis with effusion; and occasionally the differential diagnosis may be difficult. But as a rule, the recognition of the true condition presents no great difficulty to one accustomed to examining the heart.

The size, position and methods of examining the heart have been so often and so well described, that I shall omit them. But in examining for dilatation, several points should be recollected. Normally, the heart dullness extends about one quarter of an inch to the right of the sternum in the fourth space; and to the left in the fifth space, to within an inch or an inch and a quarter of the nipple line. But the latter boundary is only correct when the subject is standing. Lying down the apex beat is felt considerably above and mesially to its position in the erect posture. And an apex beat in the fifth space, an inch or so inside the nipple line, with the patient lying on his back, indicates a moderate dilatation; for a change to the erect posture would displace such an apex behind the sixth rib, or even into the sixth space. Allowance, moreover, must be made for differences in individual size, and for irregularities in the position of the nipple. The distinction between dilatation and pericarditis with effusion is sometimes troublesome, but there are two points wherein the symptoms differ. In dilatation, the angle between the right margin of the heart and the surface of the liver is always an acute angle; whereas with effusion into the pericardial sac the angle is always an obtuse one. In dilatation, the heart sounds and apex beat are heard and felt to the margin of the deep dullness; in effusion, there is always a crescent-shaped area on the outer border where the impulse is absent and the heart sounds diminished or absent. It should be noted, however, that in dilatation the apex beat may be so diffuse and feeble as not to be felt, even when it can be seen.

As is commonly known, the heart is a hollow muscular organ, which by its rhythmic contraction constantly forces renewed supplies of blood into the arteries, maintains therein a considerable tension, and thus sustains the circulation. At each diastole the heart dilates; and the question at once arises why it only dilates just so far and no further. Furthermore, it dilates more during severe bodily exercise than during rest; and the further question arises, how does this normal dilatation differ from pathological dilatation? The second question can be readily answered. So long as the increased dilatation serves merely to increase the amount of blood expelled, and the heart contracts with unimpaired power, emptying itself at each systole, the process may be considered physiological. But the moment the dilatation reaches such a point that the heart power is impaired, and the ventricles fail to contract normally each time the process has become pathological. The exact amount of dilatation which can be considered physiological is dependent entirely on the individual and collective strength of the muscular fibers. But in any case, this apparently normal dilatation is comparatively slight and may be passed without further cosideration. When we attempt to answer the first question, why does the heart dilate normally so far and no further, we meet the same difficulty which is found in every attempt to explain the essential nature of life and activity. We can only repeat that the muscular tone of the heart muscle prevents hyperelongation of its fibers, and that this muscular tone, although resident in the fibers themselves, is apparently dependent upon the cardiac ganglia. Anything which diminishes cardiac tone favors cardiac dilatation, and the deleterious influence may act directly on the muscular fibers, or indirectly through the sympathetic system and cardiac ganglia. In either case the ultimate result may be the same in producing dilatation.

In attempting to give the reasons for dilatation occurring in the course of or following infectious diseases it is necessary to consider the various deleterious influences which may be at work. In many fevers there is a very considerable destruction of red corpuscles, a true secondary anemia is produced and the heart suffers from the lack of nutrition together with the rest of the body. In other diseases the inability to take sufficient nourishment leads to the same result. Excessive, rapidity of action alone would hardly be sufficient to account

for acute dilatation, even though it were accompanied by increased tension. In exophthalmic goiter, where rapid heart action and increased tension often continue for months, hypertrophy rather than dilatation ensues. But increased rapidity of action combined with diminished nutrition may lead to myocardial degeneration and dilatation. Direct interference with the circulation where the heart is normal leads to hypertrophy rather than to dilatation. But the sudden rupture of a valve funder extreme strain may result in acute dilatation and paralysis of the sound heart. In a heart already diseased a slight strain may produce the same result. Dilatation occurring in pneumonia might be attributed to mechanical interference with the circulation. But as dilatation may occur in pneumonia where but little of the lung is involved, and also with pneumococcus infections without involvement of the lung, and may be absent in cases where several lobes are solid, it could not be maintained that the inflammation of the lung itself was more than a contributing cause. In every case of dilatation following infectious disease, the toxemia undoubtedly plays the principal role. In all infectious diseases quantities of highly toxic products are produced as the result of the infection. The heart suffers in common with the other tissues. In some cases it apparently escapes unharmed, whereas in others it appears to suffer the principal damage. If the poisoning is sufficient to cause myocardial degeneration loss of muscular power inevitably results, and if the muscular fibers becomes so weakened as to be unable to completely empty the ventricle dilatation ensues. If the poison acts through the cardiac ganglia, causing loss of muscular tone, the result is likewise loss of power and eventual dilatation If the dilatation becomes so great that the circulation can no longer be maintained, death inevitably follows. Such dilatation may result from progressive weakening of the muscular fibers, but it is more commonly caused by overstrain in the weakened and ofttimes dilated heart.

Cases which have come to autopsy have regularly shown dilatation of either or both ventricles, more commonly the left; sometimes the auricles are also dilated. The walls are thin, flabby and pale. Most of the cases which have been examined microscopically showed cloudy swelling, fatty infiltration and fatty degeneration. In a few cases degeneration of the cardiac ganglia without involvement of the muscular fibers has been noted. These changes form the anatomical basis of the symptoms observed during life.

In order to gain a clear conception of the symptomatology, course and prognosis of acute cardiac dilatation following infectious disease, it will be convenient to group the cases in several main classes:

1. Cases in which no especial cardiac symptoms are noted until the sudden onset of a rapidly fatal cardiac paralysis.

2 Cases in which no especial cardiac symptoms are noted until the sudden onset of dangerous cardiac weakness, followed by eventual death or recovery.

3. Cases in which the loss of muscular power appears to be progressive and the circulation becomes more and more embarrassed until death ensues.

4. Moderate or severe cases which developed more or less rapidly, but which tend to partial or complete recovery. This includes the vast majority of the cases.

The history of cases belonging to the first class is about as follows; The patient has suffered from a moderate or severe attack of infectious disease, but convalescence has been established. There are no marked symptoms of cardiac weakness, and it passes unnoticed. Then the patient suddenly subjects himself to an unaccustomed strain. He sits up in bed or gets out of bed; perhaps he walks upstairs or takes a walk in the garden. The result is a sudden overdistension of the heart and cardiac paralysis. The patient becomes cyanosed, gasps for breath and falls dead. The number of such cases is considerable. They occur more frequently in diphtheria then in any other infectious disease, perhaps more frequently than in all other infectious diseases combined. A typical history of this class is as follows: Boy, aged 12; convalescent from a moderate attack of diphtheria; membrane gone for several days. Against the doctor's orders he took a short walk and returned home, having gone less than five hundred feet. Just after crossing the threshold he fell dead.

In all such cases there is either a myocardial degeneration or ganglionic degeneration, or both, and a careful examination of the heart would reveal evidence of the same in nearly every case. But the examinations must be frequently repeated, for the evidences of the degeneration may arise within twenty-four hours.

An analagous condition sometimes follows operations. In Fowler's Surgery are noted a series of eight cases occurring in his practice in which sudden death occurred at a time when the patient was supposed to be on the high road to recovery. I recollect a similar case which occurred in the service of Doctor Dickinson when I was house surgeon in Brooklyn Hospital In most of these cases the operation had been comparatively slight and in all the convalescence was uneventful up to the moment of the fatal attack in no case was sepsis present. In every case the attack occurred when convalescence was nearly completed and was caused by some unaccustomed act, such as siting up in bed, get-

ting out of bed, or moving about the room. In one case the patient died in a carriage while on her way home from the hospital. In the latter case the fatal attack occurred in the third week; in the others during the second week. In five of these cases an autopsy was held, and in each case the heart showed myocardial degeneration and dilatation. The cardiac ganglia were not examined. The etiology of this class of cases is obscure. In some the cardiac degeneration appears to have existed before the operation; in others it is doubtful. The products of decomposition of animal tissues are poisonous, and the toxins produced are similar in nature to those produced by the bacteria of infectious disease. The various anesthetics appear to exert a deleterious effect on the heart, and one or the other of these agents, acting upon a heart which for some reason is particularly susceptible, appears capable of so lowering the cardiac tone as to result dilatation and death. Whether a normal heart could be so profoundly affected, and whether the poison acts primarily on the muscular or nervous tissues, is still a matter for investigation.

In the second class of cases the course is the same up to the moment of the fatal attack. But in this class either the strain is less or the resisting power of the heart is greater, and though dilatation and great cardiac weakness ensues, death does not at once occur. The subsequent history of such cases differs in different instances. In a certain number of the cases the heart has been irretrievably damaged. After a period of improvement, or without it, increasing symptoms of cardiac insufficiency become manifest. Cyanosis, œdema of the extremities, and disturbance of the digestive and excretory functions appear. Finally death results from an acute attack of heart failure or from pulmonary œdema. Fortunately such cases are rare. They are only apt to occur in the possessors of hearts already weakened by previous disease or in elderly persons in whom the recuperative powers are slight. The vast majority of these cases tend to improve. Even though the symptoms increase in severity for a time and dyspnea and edema appear, the prognosis is favorable. Improvement usually begins within two weeks after the sudden onset and at first is apt to be rapid. Within a few days the line of deep dullness may recede from an inch outside the nipple line to the nipple line, or even within this line. The subsequent contraction proceeds at a slower rate. With the decreasing dilatation there is an improvement in the rational signs. The edema and cyanosis disappear; the heart sounds become clearer and less diffused, and the general strength of the patient shows a steady improvement. Whether such cases recover completely depends, I believe, on the subsequent management. If the patient is supposed to be suffering from general weakness, is dosed with stimulants, and is allowed up as soon as he is able to stand, the heart fails to get the relief which its condition demands, and it fails to contract; subsequently it hypertrophies and the patient recovers with a dilated and hypertrophied heart. Such cases were very numerous after recovery from typhoid in soldiers taking part in the Spanish war. If, on the other hand, the heart is relieved of all possible strain, it eventually contracts approximately to its normal size and recovers its normal strength. But this may require weeks in bed and months of very quiet life.

Under the third class we include those cases in which the loss of muscular power appears to be progressive, and the circulation becomes more embarrassed until death ensues. Sometimes the weakening and dilatation appear to be steadily progressive; in others the dilatation occurs in repeated attacks until the maximum is reached and paralysis ensues. In the former case the symptoms of cardiac embarrassment become more and more apparent. Dyspnea, cyanosis, edema of the extremities, and weakness of the pulse increase until the circulation fails altogether and death follows. Cardiac dilatation following pneumonia, rheumatism without endocarditis, and pericarditis apparently usually belong to this division. In the latter case the dilatation appears rather suddenly. Symptoms of cardiac embarrassment ensue. Then after a few hours, with or without an intervening period of improvement, another attack of dilatation supervenes, and the circulatory disturbance becomes more pronounced. Several such attacks may occur before the fatal issue. Fisher's case following scarlet fever appears to belong to this class. Fortunately the number of these cases is relatively small, except in pneumonia, where they are responsible for a considerable proportion of the deaths. The treatment is prophylactic and supporting. The avoidance of all possible strain on the heart, the supply of sufficient nourishment to the organism, and the elimination of poisons as rapidly as possible—these are the chief points to be remembered in prophylaxis. The treatment we will consider in connection with the next class of cases.

The fourth and last class includes all cases of cardiac dilatation following infectious disease, except those in which the initial symptom is dangerous cardiac failure, and those in which the condition tends to become progressively worse and to lead to a lethal outcome within a few days or even hours after the first apparent symptom. The dilatation may develop during the course of the disease, or more commonly after convalescence has begun. In either case it is most apt to be noticed during convalescence.

The first symptom to be noted is generally softness and irregularity of the pulse, or possibly dyspnea, if the patient attempts to sit up. In the severer types the symptoms are apt to become progressively worse for several weeks. Marked edema of the extremities, moderate cyanosis, and dyspnea on the slightest exertion may develop. The pulse may be rapid and irregular, but is often slow and shows a tendency to remit. The remissions may be so numerous and prolonged that the patient is unable to sleep. He complains that when he goes to sleep his heart stops and wakes him up. This is often a very troublesome symptom, for it is absolutely necessary that the patient should have the proper amount of rest. An uncomfortable sensation in the heart or consciousness of heart action is frequently complained of. Attacks of angina may occur, but they appear to be uncommon. The ingestion of food and drink, or the evacuation of the bowels, often causes a marked increase in the pulse rate. Consciousness is usually not disturbed. Moderate cyanosis and edema of the extremities are not uncommon in severe cases. Congestion of the kidneys occurs. If the heart be examined under such circumstances, usually no apex beat will be felt. If present, it is a diffuse heaving of the chest wall. The deep dullness will extend outside the nipple line and down to the sixth rib, or even into the sixth space. The cardiac sounds will be feeble and audible over a much larger area than normal. They are always to be heard as far as the deep dullness extends, in contradistinction to effusion, in which the sounds do not extend to the margin of the deep dullness, a crescentric area intervening. The second sound may be relatively accentuated. In some cases a mitral murmur develops either as the result of stretching of the auricular ventricular orifice, or of the papillary muscles, allowing regurgitation.

In the worst cases death may ensue. The dilatation may be progessive or occur in repeated attacks, and this may occur with the patient resting quietly in bed. An attack of vomiting frequently ushers in the fatal termination. Such an outcome is fortunately comparatively rare. Even in the bad cases with edema and cyanosis recovery usually follows if the condition is realized and properly managed. The symptoms may reach their height within a few days, or not for several weeks; they may then remain stationary for days and weeks before much improvement can be noted. In the cases which I have observed personally some hearts remained about the same size for a few days, others for several weeks, and then they contracted several fingers' breadths within a few days. With this contraction came an improvement in the paitent's general conditions, but ultimate recovery required weeks or months.

In the milder cases the course is somewhat similar, but the symptoms are slight. There may be dyspnea and the patient easily tires. The pulse is apt to be rapid and irregular, but it may be slow and intermittent. The condition is commonly attributed to general weakness; the heart is not examined and the real condition is not diagnosed. Such patients are very frequently encouraged to exercise some; to get around and enjoy the fresh air, etc. Frequently they are obliged to resume their occupation at the earliest possible moment. The result is that the over-taxed heart never gets an opportunity to contract, and compensatory hypertrophy occurs. This condition frequently follows typhoid fever and influenza. The prognosis as to life is good, but as to ultimate recovery with a sound heart, it is unfortunately very bad, and it is bad simply because the trouble is so frequently overlooked and not properly managed. The compensatory hypertrophy allows such patients to get around and do a moderate amount of work but as a rule they cannot endure severe or long continued muscular strain.

In treating cases of cardiac dilatation, there are several points to be kept in mind. The work of the heart must be reduced to a minimum, and all strains carefully avoided. The elimination of toxins circulating in the blood must be promoted so far as possible. The general bodily strength must be built up as rapidly as possible. The nervous irritability which is commonly present must be controlled, and the circulation must be regulated and the cardiac tone improved.

To diminish the work of the heart to a minimum, the patient must be kept in the recumbent posture and all excitement avoided. The ingestion of large quantities of food or drink, or the ingestion of very stimulating articles of food or drink, such as heavy soups, gravies, and alcoholic beverages should be prohibited. Light, easily digested articles of diet, and those leaving the least residue are to be preferred. The bowels should move once a day, and should be kept soft to prevent straining If necessary an enema may be given. The kidneys should be kept active, and to flush them a fair amount of fluid is necessary. But large amounts of fluid at any one time should not be taken. As a tonic, iron, arsenic and strychnia, in various combinations, are the most valuable. In many of these cases there is a marked instability of the nervous system. Insomnia is frequently present. For this condition, lupulin, codeine, trional and asafetida are often indispensable. Bromides are unsuitable, for they upset the digestion. Hyoscine is too depressing Codeine and strychnia together exert a marked quieting effect on the circulation, but these need to be supplemented by drugs which act directly on the heart itself. As a pure heart tonic, sparteine sulphate is probably the best

drug known. In doses of ¼ grain, three or four times a day, it strengthens and steadies the pulse It is usually advantageous to combine with it small doses of cactus grandiflorus, or strophanthus. In the early stages digitalis is distinctly contraindicated. It acts directly on the muscular tissue of the heart, and it is a priori unwise to attempt to stimulate this if it is already degenerated. Furthermore, if the degeneration is marked, digitalis may fail to act. I recollect one such case where digitalis was given for about 48 hours, and the only effect noted was that the heart became weaker and more irregular. If, as is often the case, the degeneration affects the cardiac fibres irreguiarly, stimulation by digitalis will cause contraction of the least affected fibers, whereas it will cause little or no contraction of the most affected fibres, and thus may result an irregular dilatation of the heart wall and possible ultimate rupture. But although digitalis is contraindicated in the early stages, it is a valuable remedy in the later stages, particularly in those cases where after the heart has nearly regained its normal size it remains weak and irregular. But the doses should be small, not more than 10 minims of the tincture per day, and usually half that quantity is sufficient.

When the heart has regained its normal size and the patient is able to sit up, resistance exercises should be practiced to increase the nutrition and strength of the organ.

It is doubtful whether in any case the heart exactly regains its former size. It is probable that very slight dilatation with compensatory hypertrophy always remains, but with care and good management these cases recover with practically as good a heart as before and capable of enduring as much work. But it may require several years for the heart to recover its normal powers of endurance, and during that time it is necessary to guard against overstrain, physical or emotional.

The following cases illustrate most of the preceding types of casee. Except the first all have occurred in my own practice:

Case I.—Male, aged 30. Very severe attack of typhoid. Temperature range during second and third weeks, 104 to 105 in spite of baths and sponging. Moderate hemorrhage on the twenty-fourth day. Toward close of fourth week, temperature normal mornings; but afternoon rise continued during fifth week, and the temperature did not become subnormal and remain so until the end of the seventh week. On the twenty-ninth day, the nurse noted that the pulse had become very variable in rate and volume. During the next few days it appeared more normal. On the thirty-ninth day the pulse was of good quality, the temperature normal, and the patient was allowed to sit up in bed one hour. During the succeeding week patient allowed to sit up in bed about an hour every afternoon. During this week it was frequently noted that the pulse was very variable, and it often appeared stronger when sitting up. On the forty-seventh day it was noted that the taking of food, or even the mere sight of food, would change the pulse rate as much as twenty beats in the minute, and some times more. Furthermore, it was noted that the average rate had increased during the preceding two days, from about eighty to about ninety beats in the minute. On the forty-eighth and forty-ninth days the pulse was stronger, but very variable. On the fifty-second day, sitting up for an hour in bed raised the pulse rate to 118; five minutes after lying down it had dropped to 100, but it required an hour for it to reach 90. From the fifty-second to the sixtieth days the pulse continued variable and very compressible; it averaged about 84, except when sitting up or after taking food, when it might rise as high as 120. Up to this time the condition was regarded as one of great prostration following a severe attack of the fever, and treated accordingly. On the sixty-first day a careful examition of the heart was made. The dullness extended nearly an inch outside the nipple line and behind the sixth rib. Heart sounds feeble; apex beat diffuse and practically absent. Small doses of cactus, sparteine, iron, arsenic and strychnia were administered during the succeeding week, and patient ordered to remain quiet in bed. During the week, the heart contracted to a point about one-half inch inside the nipple line. Pulse rate averaged about 80, still impressionable, but not so irregular as during preceding weeks. Patient allowed to sit up five minutes at a time and gradually lengthen the period. On the seventy-sixth day allowed to sit up in bed for half an hour morning and afternoon. On the eighty-first day allowed out of bed for the first time. Heart practically normal in size, pulse about 80. During the later stages of convalescence, sparteine sulphate and codeine were the principal drugs employed. In this case, the loss of cardiac tone appeared to be due quite as much or more to the involvement of the cardiac ganglion and to the sympathetic as to muscular degeneration. The excessive cardiac instability or irritability continued for weeks after the heart had regained its normal size. There was likewise involvement of the vasomotor system, as shown by rapid changes in the vascularity of different parts.

During the months of November and December the patient gradually gained in strength: but on January 20th he was attacked with influenza, and on the 23rd developed bronchopneumonia in the right lower lobe anteriorly. A few days later patient noticed that the heart had dilated to the nipple line. On February 4th, the heart had contracted to nearly

normal size. During the intervening days, the highest pulse rate had been 114; highest temperature, 102.4; respiration hardly disturbed. During these nine days the area originally involved cleared, but there were minor extensions into neighboring parts of the lobe. On February 7th, the fifteenth day of the illness, the disease attacked the entire lower lobe. Improvement from this relapse began three days later and continued slowly, interrupted by minor extensions into the lower margin of the upper lobe. On February 23rd, the patient complained of an oppressed feeling in the heart, and examination showed that it had again dilated out to the nipple line. On the following day the patient was evidently much worse. The temperature remained about 102 6, and the pulse about 130. On the succeeding day, examination showed dullness and absence of breathing over the entire middle lobe. The heart was dilated out to the nipple line. Patient cyanosed, pulse above 130 in spite of stimulants. Temperature during afternoon remained about 103 to 103.2. During the night a marked improvement occurred, and the following morning temperature was 98.8, pulse 92, respiration 24. On the succeeding morning the temperature was subnormal, pulse and respiration normal. On February 28th, the fifth day of this severe attack, dullness had disappeared, and only a few moist rales and diminished respiratory murmur were to be found, over middle lobe. During the succeeding week, the moist rales continued over middle lobe, and there was a regular rise of temperature every afternoon, but in spite of this the heart once more contracted well within the nipple line. On March 10th, the forty-seventh day since the pneumonia began, the middle lobe was nearly normal, but there were a few points where rales and diminished respiratory murmur persisted. On this morning patient felt restless and irritable; pulse weak. Examination showed apex beat not to be felt; dullness extended outside nipple line. On the fifth day a careful examination of the lung failed to reveal any points of inflammation. The apex beat was feeble just inside the nipple line. Four days later the apex beat was one half inch inside the nipple line, but localized points of inflammation once more appeared in the lower lobe. A few days later these cleared up, and convalescence was finally established about the end of the second month. The heart gradually contracted, and a month later it had approximately regained its normal size. But the recovery of the normal nervous tone required much longer, and it was about two years before the patient could endure any great amount of nervous or physical strain

Case II.—Aged 30. In the spring of 1904 he suffered from an attack of influenza which confined him to the bed for several days. Returned to business feeling weak and miserable. Slight exertion caused dyspnea. Continued at business and symptoms gradually subsided. For nearly a year has been in good health, except that he has been treated for ptosis of the stomach. Considered himself sound when the present attack developed. On February 4th, 1905, throat became very sore; and on the second day thereafter he was treated at our office for pharyngitis and tonsilitis. Two days later he was again seen at the office. Temperature, 100.6; pulse, 120. The right tonsil was covered with a thin, dirty-grayish pellicle, which, however, could be very easily swabed off. An examination of the exudate showed pus cells and a pure culture of diplococcus lanceolatus. The capsules stained perfectly. A culture made the preceding day failed to show the bacillus diphtheriæ. On the following day a large peritonsilar abscess was evacuated and irrigated, The inflammation in and around the tonsil began to subside, but the patient failed ro recover. The temperature remained about 100, and the pulse above 100 a week. On February 12th, the ninth day of the attack, a chest examination was made. Lungs negative. Heart apex beat diffuse; cardiac dullness extends an inch outside the nipple line, under upper border of sixth rib. Patient, who had been sitting up in bed, was ordered to remain in the recumbent posture and avoid strain or excitement. Three days later the temperature fell by crisis; it became subnormal and so remained for several days.

At the same time, sweating was very noticeable. The pulse rate became slower, but it did not return to normal till some days later. At this time the cardiac dilatation was the same as when first discovered. The apex beat and the pulse were, however, stronger than one would expect with a heart so much dilated. During the succeeding week the heart contracted, and on the 27th the margin of the apex beat was just inside the nipple line. The pulse was strong and regular. Regulated exercises were prescribed, and a week later the patient returned to work. He has felt well for the past two years, but the apex remains just inside the nipple line. In the light of our present knowledge, the cause of this continued dilatation is clear. In the spring of 1904 the patient suffered from an attack of influenza, which was followed by an acute dilatation of the left ventricle. As is to often the case, the condition was neither recognized nor treated. The patient received the general direction to go out, take exercise and become strong—the worst possible direction under the circumstances. He returned to business with a dilated heart. Some contraction probably occurred, compensatory hypertrophy took place, and he suffered no more inconvenience until an infection with the pneumococcus occurred. This was followed by another attack of dilatation. But as the heart was already hypertro-

phied, the pulse remained fairly regular and moderately strong, a feature which puzzled us at first. As soon as the pneumococcus infection had passed, the heart contracted, but only to its former size, and not to the normal. This case is remarkable in showing the symptoms of general systemic poisoning usually associated with pneumonia, with the site of infection limited to the tonsil, and no evidence of inflammation of the lung. A few weeks later I heard of a similar case which died. It was described by the physician in charge as pneumonia of the throat, or as pneumonia with the lung infection left out.

Case III.—Male, aged 30. Well developed, powerful individual, but very stout. He was examined for life insurance a couple of times within a few months before the onset of this attack, and heart and lungs found to be normal. On January 21st I was called, and the patient presented the following appearance: He was sitting propped in a chair, with the sweat rolling down his face, with an almost continuous hacking cough, pain in the side, and inability to breathe when lying down. He had felt ill for a week, but had only given up work the preceding day. A rapid examination of the chest revealed a general bronchitis, and a bronchopneumonia in the right lower lobe. The apex beat was diffuse and felt outside the nipple line. Dullness extended about one-half inch outside nipple. The pulse was soft, slightly irregular, and about one hundred The first sound at the apex was muffled, the second pulmonary accentuated. The patient was put to bed, but had to remain in a semi-sitting position, on account of the dyspnea when lying down. Sparteine, strophanthus, and strychnia were administered, and later ammonium carbonate. The bronchopneumonia ran a tedious course, and it was about three weeks before that disappeared. The heart beat became somewhat stronger under the use of the above mentioned stimulants; but on February 28th, the thirty-second day after I first saw him, the cardiac dullness still extended to the nipple line. Ten days later, the limit of dullness had receded three-quarters of an inch, and the pulse had become of better quality. In another week, the heart approximately regained its normal size; but it was several weeks later before the patient could endure any exertion, and it was in April before he could return to business. Even then he had to take great care to avoid any physical exertion. This case is very interesting from several points of view. The bronchopneumonia was undoubtedly of grip origin. And the cardiac dilatation is to be attributed to the grip poisoning, rather than to the lung inflammation per se. The dilatation occurred early in the attack, and persisted more than three weeks after the pneumonia disappeared. When the contraction began, it was at first rapid, and then more gradual. The normal size was not regained till about fifty days after the onset of the pneumonia. Even then the heart was weak and irritable, and months afterwards it was very easily disturbed by slight influences. In fact, this patient never became strong, and a few months later developed well marked symptoms of exophthalmic goiter, from which he is still suffering. The exhibition of small doses of digitalis was attempted on February 27th, when the pneumonia had about disappeared. But it made the pulse weaker and more irregular, and its use was abandoned after thirty-six hours. On the other hand it was again administered after the heart had contracted nearly to its normal size, and it then had a pronounced beneficial effect in slowing and steadying the heart.

Case IV.—Boy, aged 8. Severe attack of diphtheria. On the fourth day the father took the child in his arms to show him the garden: The boy became cyanosed and almost pulseless. I had left stimulants to be given in case of heart failure, and the boy soon recovered his normal color. When I next saw the child, two days later, the apex beat was at the nipple line, the pulse weak and slightly irregular. On the fifteenth day the membrane disappeared, and four days later the bacilli were reported absent by the Board of Health. On the latter day the pulse averaged 88, although the child was in bed playing quietly with his toys. On standing up, the pulse jumped to 120, and he was immediately laid down again. Four days later he was able to go around the room without the pulse going above 100. On this day the heart had about returned to its normal size. But it required several months before the child could bear exertion without dyspnea. As is well known, the diphtheria poison has a particularly damaging effect on nervous tissue; and it appears probable that in this and similar cases the cardiac ganglia are the part particularly affected.

Case V.—This is particularly a duplicate of the preceding case, with two exceptions. The patient, boy aged about 10, was well of the diphtheria, and had been discharged as cured by the physician in charge. About a week later he was asked to see the child' which appeared to be loosing strength instead of gaining. On examination it was found that the pulse was weak and rapid, the extremities cold, and the child suffering from dyspnea on exertion. After three weeks rest in bed, patient recovered. The case was considered as one of heart weakness following diphtheria and treated as such; but the heart was not examined, and the dilatation was not discovered, although it undoubtedly existed.

Case VI.—Girl, aged 10. Was treated by me for fractured arm only a few months previous to the present attack. At that

time the heart was perfectly normal. In February, 1905, she was treated for a mild attack of scarlet fever by Dr. B., and after about three weeks was discharged cured. A week or two later, I was attending in the same family, and noticed the child. The hands and lips were blue, pulse rapid and weak. Examination showed a heart dilated out to the nipple line. She was ordered to spend most of the time lying down, and to avoid exertion. In a couple of weeks the heart receded to its normal position, and the child recovered her former strength.

Case VII.—This is introduced as a type of case of which dozens were examined by my father, as one of the U. S. Pension Examiners in Brooklyn. Male, aged about 25 to 30. Always been in good health till he entered the army during the Spanish War. Had typhoid in Chickamauga and compelled to return to camp duty almost as soon as he was able to leave hospital. At first was very weak and suffered from dyspnea on exertion. Has gradually improved, but never fully recovered former strength. Is unable to endure severe muscular strain. Examination shows a dilated and hypertrophied heart, the apex being about at the nipple line. The condition is clearly one of dilatation following typhoid, succeeded by compensatory hypertrophy. The patient was compelled to return to duty before the heart contracted, and now there is no reason to suppose that it will ever do so. He is able to do a fair amount of work not involving too severe strain, but he has not now, and probably never will have, the endurance which he previously possessed.

In concluding, I would like to emphasize the following points:—In all toxemias the heart is more or less affected. This is particularly true of the acute infectious diseases. In typhoid, influenza, rheumatism, diphtheria and scarlet fever, the heart involvement is very frequent and is very often out of all proportion to the severity of the original attack. The symptoms of cardiac weakness may develop at any time after the beginning of the attack, but most commonly after convalescence has begun. The first evidence of cardiac involvement is revealed by changes in the first sound heard at the apex and diminished tension in the arteries. If the loss of cardiac tone is sufficiently great, dilatation follows. This is characterized by irritability of the heart, softness, weakness and irregularity of the pulse. Symptoms of failing circulation depend upon the degree of muscular weakness and extent of dilatation. A dilatation out to one finger's breadth beyond the nipple line is usually recovered from; two fingers' breadth is exceedingly dangerous, and three fingers' breadth is usually fatal. Vomiting in a case of acute dilatation is usually the precursor of sudden death.

All cases of infectious disease should be carefully watched and appropriate measures taken to reduce the work of the heart to a minimum, prevent strain, and eliminate toxines as rapidly as possible before symptoms of heart failure threaten or are present. In every case of infectious disease the heart should be frequently examined until convalescence is fully established.

The prognosis is usually good in those cases in which the danger of this complication is appreciated and the patients intelligently treated.—New York State Journal of Medicine

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REPORT OF CASES OF UNUSUAL DERANGEMENT OF THE KNEE JOINT.

By A. R. Shands, M.D.

The cases to be herein reported as unusual derangement of the knee are not, strictly speaking, unusual in the experience of the orthopedic surgeon, who has to do with abnormal conditions of knees in large numbers, but I am forced to believe that such are unusual in the experience of the general practitioner. This assertion is based upon the fact that each of these cases has been referred to me by a different general practitioner with a large practice. As a matter of fact I do not recall that any two similar cases have been referred to me by the same physician; therefore, it is reasonable to assume that such are unusual in the practice of the average physician. As these cases are rarely ever correctly diagnosed at the beginning, I feel fully justified in bringing them to the attention of this Society that is made up largely of general practitioners, trusting that I may be able to throw some light on the subject that may be of help to the physician who first sees such cases in making an early diagnosis, which in turn should save him the mortification of having some more fortunate fellow practitioner, into whose hands they will surely fall, to make the diagnosis and who is, too often, I am sorry to say, not very considerate in his expressions of the professional ability of his fellow physician who first saw the case.

In extenuation of the failure of the practitioner to make a diagnosis in these obscure cases, I am frank to confess that the specialist does not always correctly diagnose them at first sight; such has been my experience at any rate, for more than once have I been equally as much surprised at what I have found on opening a knee joint as any abdominal surgeon has ever been upon opening an abdomen when he felt "cocksure" of his diagnosis. In illustration of this point I will mention briefly a case that was brought to my clinic at the University of Vermont: A girl 12 years of age with a knee

presenting almost a perfect clinical picture of a suppurating tubercular knee joint. All arrangements had been made to do an arthrectomy and to establish through and through drainage. A longitudinal incision was made on each side of the knee, which at once revealed the fact that I had not a tubercular process at all to deal with, but a case of round cell osteo-sarcoma, involving both the condyles of the femur and the head of the tibia, and thoroughly disorganizing the entire joint.

The first derangement of the knee joint that I wish to call your attention to is injury to the semilunar cartilage. To better understand this derangement and to simplify the matter, I trust I will be pardoned for taking you over certain anatomical points in the mechanism of the knee joint.

The knee is a hinged joint where the bones, apart from the soft structures, are not adapted to one another. Its strength depends upon the tendons and ligaments which surround it and upon the crucials which lie within. How strong these ligaments must be is evident when you consider the shape of the knee joint—no part of the bony conformation in any way calculated to resist this displacement, and yet the soft structures are sufficiently effective to resist distraction in spite of the leverage of the two longest bones in the body. The motions of the knee joint are antero posterior, gliding and rotation of the femur upon the tibia. In certain positions considerable rotatory movement can take place. In conditions of great strain the muscles—the rectus in front and ham-strings behind—are valuable accessories. A strain upon the ligaments is much more severe when the knee is twisted as well as stretched. This takes place when the knee is flexed, the foot abducted and the femur rotated inward. In fact, it is in this position that strain and rupture of the internal lateral ligament and displacement of the semilunar cartilage almost always occurs. In displacements of the semilunars the lateral ligaments are frequently injured.

The semilunars are two dense crescentic plates of a compact structure, attached by their outer margins to the capsule of the joint. They cover almost two-thirds of the articular surface of the tibia. They are wedged-shaped, tapering from their outer thick base to their inner free border, thus increasing the concavity with which the femoral condyles articulate. Their tibial surfaces are flat, and both tibial and femoral surfaces are free and covered with synovial membrane. This is an important factor in connection with the synovial effusion which always follows an injury. In thin persons the prominent inner margins of the internal cartilage can be felt between the bones in front of the lateral ligament. Both cartilages in their convex border are attached to the capsule of the joint. It should be remembered in connection with the displacement of the internal semilunar cartilage that the bending inwards of the knee in the extended and semi-extended position is prevented by the internal lateral ligament, and that the bending inwards of the knee in the fully flexed position is prevented by the crucial ligaments. This shows now it is that the internal lateral ligament is so frequently injured in violent traumatisms of the knee joint. The strength of the knee joint is gauged by the resisting power of the internal ligament. It is estimated that the attachments of the internal semilunar cartilage allow it to be lifted fully a quarter of an inch. If the internal lateral ligament, on account of its peculiar attachments, is ruptured above and below the level of the cartilage, it becomes a very simple matter for it to be pushed into the joint. This was the condition of affairs with Case No. 1, herein reported.

When the cartilage slips inwards as the bones snap back, it is nipped, and the knee becomes fixed in a flexed position and is extremely painful. The pain and effusion, a very prominent feature, is caused by the injury to the synovial membrane which covers both sides of the cartilage. Injury to the synovial membrane may be confined to a very small area, and yet be followed by a very extensive inflammatory condition with a very profuse synovitis within a very short time. A very eminent authority has stated that he has never seen a case with a cartilage displaced outwards. It is the locking of the cartilage between the bones that gives rise to the very acute pain.

The symptoms of this condition are very plain in the acute cases. The history of the injury with the locking of the joint in a flexed position, with great pain, which is relieved as soon as the leg is forcibly extended, after first increasing the flexion are important considerations. The recurrence of the trouble is often caused by a very slight injury, and the patient soon learns to replace the displaced cartilage by pulling his heel back against his buttock and quickly kicking his leg with force to a fully extended position, which will cause an audible snap as it goes back. I have recently had a patient suffering from a recurring displacement of a semilunar, who could easily throw the cartilage out of place by twisting his leg outwards with the knee semi-flexed and then snap it back as described. This had happened so often that it caused him no pain. As a rule, other patients are not so fortunate. Pain and disability are very prominent features.

The diagnosis in the recurring cases is not so plain, for there are many derangements of the knee joint that may cause confusion, such as loose bodies, which may be either cartilaginous, fibrous or fatty. Hypertrophy of the synovial villi may be confused with a damaged semilunar. It is not an unusual condition to have a nipping of a synovial fringe, which will cause local pain and add to the difficulty of a correct diag-

nosis. There are a number of cases presenting atypical symptoms that render error in diagnosis inevitable. Case No 2 was not correctly diagnosed until the joint was opened.

Treatment.—The treatment must be regulated by conditions present. I wish to state at the beginning that I am not in favor of operating on every case of displaced semilunar. If these cases are properly treated immediately following the injury, but few will have to be operated on. As a rule it will be found that only the recurrent cases need be operated on; the primary cases should be treated by mechanical measures after the cartilage is properly reduced. It is easily determined when a proper reduction has been accomplished. If the leg can be voluntarily and easily extended to the full extent you may be sure that the cartilage is in its proper relations to the bones of the knee joint.

The fundamental rules in the treatment of primary cases are (1) absolute reduction; (2) perfect immobilization of the cartilage until there is complete union of the torn structures; (3) no lateral strain until the torn or stretched lateral ligament has regained its normal strength.

The manipulations required to reduce the displacement are acute flexion, lateral deviation, inward rotation, and full extension. Acute flexion renders internal rotation free; lateral deviation separates the bones that hold the cartilage; full extension renders accurate union of the internal lateral ligament possible. Rapid absorption of the effusion, which is so prominent a feature, is most desirable on account of its causing a relaxed condition of all of the soft structures of the joint.

My practice has been to strap the knee with adhesive plaster strips in a criss-cross arrangement from about five inches below the center of the patella to about the same distance above that bone; then apply one thickness of a flannel bandage from the center of the middle third of the femur to the base of the toes; over this apply a skin-fitting plaster-of-Paris case. The extension of the plaster of Paris over the ankle and foot produces perfect immobilization and prevents any swelling from constriction of the circulation. This dressing I leave on about a fortnight. I then renew the adhesive plaster as above described, and put on a shorter plaster-of-Paris case, extending it downwards to about the middle of the calf. This second dressing is kept on for a fortnight also; then I renew only the adhesive plaster and apply an ordinary posterior steel splint with a limited range of motion, which is to be increased as circumstances justify. Only a general outline of the treatment has been given, but if it is carried out faithfully along those lines but few cases will come to operation.

I have stated that only recurrent cases need be operated on. I wish to add that not all of such cases will need operation. In fact, I do not operate on any until failure to relieve the disability has followed the painful trial of mechanical treatment. Operation is generally indicated when the recurrence of the displacement is followed by acute symptoms, such as severe pain, swelling and effusion into the joint and into the periarticular structures.

The operation that gives best results in a very large proportion of cases is the complete removal of the cartilage. My experience has been that this is not necessary in the cases where the cartilage is loosened from its attachments only at one end. Although these patients do not seem to miss the cartilage when it is totally removed, it has always appealed to me that it should be saved whenever possible. Case No. 2 is an example of a displaced cartilage that was anchored successfully at the point of the separation giving a perfect result.

Case No 1. A young man 19 years of age, and a perfect picture of a typical athlete, being fully six feet two inches tall and weighing 180 pounds, while in a scrimmage in a college game of foot-ball was thrown to the ground with great violence wrenching his knee to such an extent that he had to be assisted from the field. It would seem that his companions must have reduced the displacement, as he told me that they pulled his leg straight, which was bent under him, giving him great pain. The accident was followed by a well-marked case of traumatic synovitis. The only treatment he received was the application of an elastic bandage, which he was wearing when he came under my care about a month after the accident. This was September 20, 1904. On examination I found a clearly defined painful area just over the anterior attachments of the internal semilunar. There was a boggy infiltration of all of the soft structures about the knee obliterating completely all of the normal prominences and depressions. There was very little excess of synovial fluid in the joint. He insisted on showing me how he could snap his knee by pulling his heel against his buttocks and then forcibly extending the limb with a kick; he could lock the knee completely by forcing the heel against the buttock, which gave him little or no pain. The knee was strapped with adhesive plaster strips, as above described and put up in plaster of Paris. A few weeks later a posterior splint with limited motion was applied in addition to the adhesive plaster dressing. He got on so well that in a few months he left off the brace without my knowledge. He got along all right for a few months, when he had a recurrence of the displacement, which he was able to reduce himself. He returned to the brace and did well as long as he used it. I recently examined this patient and found no evidence of any trouble at

this time. He has now gone about a year without a recurrence; hence he is considered cured.

This case illustrates well the cure of a recurrent case of displaced semilunar without operation.

The next case has been selected to represent what can be done by operation procedure.

Case No. 2. Miss S., white, native of District of Columbia, age 29, family history negative. She was very frail as an infant and had many diseases of infancy; at two years old was operated on for mastoiditis and made a very tedious recovery; had pneumonia at three and typhoid fever at four, but made a good recovery from both and developed into a very robust woman. Has had no serious illness since childhood.

When seven years old she was run over by a wagon, sustaining an injury to right knee which was followed by much swelling and pain, but made a good recovery, and had no special inconvenience from the knee until the summer of 1905, when she had a severe fall while mountain climbing, striking the same knee against a rock. This injury was followed by some swelling and pain, but rapidly subsided without treatment. Three months later had a severe fall, giving the knee a very severe twist. This injury was followed by great swelling and pain and loss of use of the limb for about six weeks. This disability finally was relieved under rest and local medication, but pains continued at irregular intervals, especially severe after exertion.

In June, 1906, she struck and twisted the knee simultaneously, which completely disabled her for a time, and was followed by a very acute pain and a great deal of swelling that was very slow in subsiding under local treatment.

She came under my care July 5, 1907. She was then getting around on crutches, bearing but very little weight on the injured limb. I found the knee much swollen, but no excess of synovial fluid present. Peri-articular structures were in a condition of boggy infiltration which completely obliterated the normal depression of the knee. Passive motion painful and much restricted by muscular spasm. There was a marked local tenderness on palpation all over the inner lateral aspect of the knee.

The diagnosis of a displaced semilunar cartilage was made, but operation was not urged, as I wished first to reduce the swelling with adhesive plaster strapping. This was at once applied and renewed once a week for a month, when she was operated on. The joint was opened through an incision about three inches long and about one inch below the inner margin of the patella. It was with some delay that the semilunar was located. It was finally found with its anterior end apparently free in the joint. With a tenaculum the end was easily drawn out of the wound, its attachments to the adjacent structures having been completely secured for about two inches. I at first thought that I would remove the whole cartilage, but as its posterior attachments seemed to be perfectly secure I determined I would not, but would anchor the detached portion in its normal position. This was done by first scarifying its outer margin and crushing the anterior end with a pair of artery clamps and then suturing it with kangaroo tendon to the surrounding structures. The wound was then closed without drainage. Perfect primary union resulted, although there immediately followed the operation considerable swelling, caused by a traumatic synovitis from the operation. This yielded kindly to treatment, consisting of hot fomentations. At the end of two weeks adhesive straps were applied and patient allowed around on crutches which were used for about two months. The result has been all that could have been desired. It is now fifteen months since the operation and the patient has perfect use of her knee without pain or inconvenience of any kind.

The next case I wish to report is chiefly interesting from a diagnostic standpoint. He was under my care for nearly a year before I made a diagnosis and then not a positive one until I had opened the knee joint.

Case No. 3. Alfred H., white, age 14 years, on April 21, 1905. He slipped while playing "tag," and as he fell he says that he felt something give way. He was not totally disabled, although considerable swelling and pain soon developed. He was taken to the family physician, who prescribed rest and local applications, but as he did not improve satisfactorily the physician referred him to me, which was May 9th, about three weeks after the accident.

I found the knee moderately swollen, passive motion painful and restricted by muscular spasm, but not clearly defined local tenderness. I regarded the condition at that time as an ordinary sprained knee. I applied adhesive straps and a plaster-of-Paris cast. This treatment was continued until June 27th, when a posterior splint was applied. This change was made, not that the knee was any better, but on account of his leaving the city for the summer, with prospects of his being many miles from me for several months. On his return to the city it was found that the knee was more painful than ever before; the pain was now clearly defined over and around the patella ligament. I went back to the plaster-of-Paris cast and adhesive straps. This treatment was continued until March 29, 1906, when I operated on him. I was not

positive of my diagnosis, for I thought it might be one of three things—a displaced semilunar cartilage, a loose cartilage, or a lipoma. As the painful area was quite extensive, including the region of the internal semilunar, I made a semilunar incision extending from a point about the middle of the internal semilunar cartilage over the middle of the patella ligament to a similar point over the external semilunar cartilage. This large flap was dissected back exposing the patella ligament. As soon as this was done it was made manifest that I had a lipoma to deal with, which extended from under the ligament to a considerable distance on each side. The lipoma was thoroughly removed, including the normal mass of fat just under that ligament. The wound was closed without drainage, perfect primary union resulted, and my patient was perfectly relieved from all disability of his knee. I examined this patient a few weeks ago—twenty months since the operation—and found that he had a perfect knee.

Loose bodies in the knee joint sometimes offer many difficulties in diagnosis, though as a rule the diagnosis is easily made. The case I wish to report here is reported because it is especially interesting from a diagnostic standpoint. In cases of osteo-arthritis these bodies are frequently present in large numbers; in such cases the diagnosis is easy. When a single loose body is present it is often impossible to locate it by the objective signs. Such cases are caused by bits of organized fibrin fragments of synovial membrane, or bits of cartilage, or bone that have become detached and deriving nourishment from the fluid of joint, develop to quite a large size in many cases. The clinical history is often very similar to that of a recurrent case of displaced semilunar cartilage. They often interfere with the function of the joint by becoming pinched between the articular surfaces, and giving rise to much pain and a well-marked synovitis, which is a genuine traumatic synovitis and often totally disabling the patient for many weeks. Somtimes these bodies are detected as a smooth, movable object on one or the other side of the patella, but in many the interference with the function of the joint is the first sign of their presence.

Case No. 4. Mr. C., white, age 25. Was first seen by me June 15, 1906, in consultation with his attending physician. He gave a history of having twisted his knee in a game of baseball about five years previously; he had a severe attack of synovitis following the accident, which was rather slow in yielding to treatment, but finally made apparently a perfect recovery. During the five years intervening between the original injury and the time he came under my care, he had had at least a dozen attacks of swelling in his knee, usually following a slight injury, which had always been treated as rheumatism. About a month before I saw him he received a severe wrench to his knee in jumping from a street car. Following this injury he had a great deal of pain and swelling; more than ever before in any attack. During this month but little, if any, improvement had taken place under the usual rheumatic treatment.

I found the knee much swollem and painful on manipulation, the synovial fluid was so very abundant that I could not detect any especially painful areas. I applied hot fomentations with good result to the knee for three days. This was followed by adhesive straps and a plaster-of-Paris cast for ten days. When this dressing was removed the effusion in the joint had sub sided almost entirely, leaving the synovial structure of the joint in a conditon of boggy infiltration. At this time a painful area about the size of a silver dollar was discovered just below the inner margin of the patella The diagnosis of either a lipoma or loose cartilage was made and an operation was advised and accepted.

On June 29, 1906, I made an incision about three inches long on inner aspect of the knee and about one inch below the patella. On inserting may finger into the joint, I at once located a loose cartilage about the size of a silver quarter and about an eighth of an inch thick under the inner edge of the patella. The wound was closed without drainage; perfect primary union resulted. The knee was put at rest in a plaster-of-Paris cast, which remained on for two weeks. Passive motion was then begun and patient allowed out of bed. Within about a month the patient regained practically normal motion, and has remained perfectly well since, so far as the knee is concerned.—The Virginia Medical Semi-Monthly.—

RENAL CALCULUS LODGED IN THE LOWER END OF THE URETER.

By Follen Cabot, M.D.

Male, age 32 years. Health good until present illness. The patient got up in the morning and began work—that of painting. Suddenly he felt a sharp pain over the bladder, slightly to the right side in the region of the appendix. This pain gradually increased and became agonizing. When admitted to the Post-Graduate Hospital he said he was unable to urinate. It was then thought to be a case of acute retention, and a urethral catheter was passed into the bladder. About an ounce of clear urine was obtained which, upon examination, proved to be normal. No relief followed, and a diagnosis of blocking of the ureter by a stone at the bladder inlet was made. The absence of blood in the urine made me believe the right kidney was completely blocked. There was no pain

in the back or the region of the scrotum. Temperature 100; pulse rapid; vomiting; cold, clammy skin; and fearful, grinding, steady pain.

The man was anesthetized and cystoscoped. The left ureter was open; the bladder normal. At the entrance and just inside of the right ureteral sphincter a small, dark colored stone could plainly be seen. This was a most unusual and clearly defined picture and was shown to about twenty matriculates. No urine came from the ureter. With my special forceps and cystoscope I entered the ureteral mouth, grasped and removed the stone. It slipped from the forceps and fell into the bladder. Here, again, it was shown, to the matriculates. It appeared to be about the size of a bean, but nearly round. Owing to the patient's condition, no prolonged effort was made to remove it from the bladder, as I felt sure it would be passed by the urethra later on.

Immediate relief followed and the patient left the hospital in two days. He was told to pass his urine through gauze for a few days and report to me again. This he has not done. The case shows how a stone may block the ureter and produce no pain in the back or testicles, but simulate acute retention. Also the appendix had to be considered as a possible source of the trouble. The value of the cystoscope and forceps was never shown to better advantage; a cutting operation being avoided.

THE ACTION OF STIMULANTS.

With our advance in the knowledge of the action of drugs the term stimulation needs qualification. We have become better able to discriminate as to the action and place of various agents that tend to increase functional activity, so that direction to "stimulate" no longer carries the idea of giving large quantities of alcohol or the use of any other single drug. In fact, hypodermoclysis, which easily takes first place, is not medication in the ordinary sense, and its effect is to restore functional integrity rather than to stimulate activity. Again, the application of heat, so valuable, is a non-medicinal modifire of circulatory and nervous activity. With these excellent means, so easy of application and prompt of effect, the future will see less use of stimulant drugs for direct general action, and such use will be more exact, based upon a better knowledge of drug action. But drugs that increase the activity of special organs or the efficiency of their functions will always hold a large place in therapeutics; but they will be used with greater discrimination as to action and indications, and none the less will their secondary or indirect effects benefit the general bodily condition.

It is important not to confound action and effect of so-called stimulant drugs. For in some cases we see the paradox of a depressant drug causing stimulant effects or of a stimulant drug causing depressant effects. We have learned this in the use of nitro glycerine, whose action is to depress decidedly the vagus center and likewise the muscular coats of the arterioles, by which there follows more rapid heart action and freer capillary circulation. While these are desirable stimulant effects the essentially depressant action of the drug, by which they are caused, has led to greater discrimination as to its continuous use. Again, aconite is a drug whose depressant effects give it a prominent place among arterial sedatives, though the slowing of the heart, with general drpressing of the circulation is brought about by its action upon the vagus center, which increases cardiac inhibition.

It is important also to remember that the more a drug stimulates activity of an organ the greater is the danger of exhaustion from the increased discharge of energy. Hence we note a distinction between drugs which enforce a greater activity and those which simply increase the irritability of nerve or muscular tissue. The latter, which may be called potential stimulants, are preferable when their action will suffice, while the former, or kinetic stimulants, are needed in emergencies, but their use is not to be continued longer than necessary. Strychnine is probably the best example of a potential stimulant. It does not whip any organ into greater activity, therefore its action tends less to exhaustion; but by its action upon the spinal centers, either through increasing the irritability of nerve cells or increasing the case of transmission of impulses, it permits a readier response to the usual physiologic stimuli throughout the field of spinal reflex functions. Caffeine has a mixed action, stimulating respiratory and vaso-motor centers and muscle potentially and the heart kinetically. Digitalis is quite selective in action, stimulating the heart muscle powerfully to increased activity and the vasomotor apparatus as well; but in addition it has the same action as aconite upon the vagus center, whereby the heart action is slowed and its expenditure of energy, which, under the powerful direct stimulation, would otherwise be exhausting, is much lessened and the organ is allowed longer periods of rest. Atropine, whose action is very complex, is best characterized as a central stimulant and peripheral depressant, because of which mixed action it cannot rank as a first-class stimulant, but is more often used as a depressant.

The reputation of opium as a stimulant to the heart must rest chiefly upon the fact that certain of its alkaloids posses an action similar to that of strychnine and, at the same time, no

cardiac depression is caused by it. There is still another class of stimulants whose primary action is irritating and whose consequent stimulant effect may be called reflex. The aromatic spirit of ammonia is a good example of this class. They are sometimes called diffusible stimulants, but it is to be noted that the effect rather than the action is diffusible. Alcohol to-day holds an uncertain position as a stimulant, since experimental pharmacology gives so little evidence of any essential stimulant action. As far as its action can be followed it probably belongs to the irritant or reflex class, any improvement in circulation being the result of local irritation at the point of administration. Acute stimulation should always take into consideration the bodily resources and the reserve energy of the organs to be acted upon.

A Mirror of Practice.

ASIATIC CHOLERA: ITS PREVENTION AND TREATMENT.

One of the most important things in the treatment of cholera is to keep the blood serum where it belongs, namely, in the blood-vessels. The method which has been successfully employed to that end will be referred to later.

In a large proportion of the severe cases shock and heart failure cause death, as in poisoning from cobra-bite. Sometimes there is no bowel movement before death. Second in importance as the cause of death is the dehydration of the body already referred to. Third in importance after the shock is over is uremia, to overcome which proper methods must be employed.

The result obtained by his treatment have proved so remarkable that they have elicited the thanks of many whose lives have been saved and who are now living and speaking testimonials of its efficacy.

The patient first receives from four to six tablets of the following formula:

Cocaine hydrochloride, 1/20 grain;
Creosote, ½ minim;
Cerium oxalate, 2 grains;
Pepsin, ½ grain;
Tincture of nux vomica, ½ minim,

This cocaine combination, which is listed in the catalogues of the American manufacturing pharmaceutical houses as "creosote comp.," absolutely controls the vomiting in the larger proportion of cases. As just stated, for four to six of these tablets are given at once. The patient is instructed to chew them up thoroughly before swallowing.

Before going further the writer wishes to say that all preconceived ideas of dosage must be abandoned in the active treatment of Asiatic cholera. Doses that would be prohibitory in the treatment of ordinary aliments must be given, and given promptly, for death is so inevitable, so sure, and so quick that the question of life or death depends on the work of minutes, or in some instances on the work of seconds. The serum of the blood is being poured out into the stomach and intestines, and consequently to save life enormous doses must be given and given promptly.

From three to five minutes after the cocaine compound just referred to, one or two tablets of the following formula are employed:

Morphine sulphate, 1/6 grain;
Hyoscyamus, ½ grain;
Nitrogen, 1/100 grain;
Citrated caffeine, ½ grain;
Capsicum,
Camphor, of each ½ grain;
Tincture of digitalis, 5 drops.

The patient is directed to chew these tablets before swallowing them.

Every few minutes, until the pulse can be felt at the wrist, the tablet of nitroglycerine 1/100 minim, with 2 minims of the tincture of digitalis, is given.

As soon as the pulse is felt at the wrist, no matter how feebly, the prognosis becomes more favorable. Now is the critical time in the case, and he who hesitates is not only lost, but he will certainly lose his patient unless he gives nitroglycerin and digitalis for effect. The author has given as high as twenty or thirty tablets in the course of a few hours with splendid results.

In the meantime the patient is given the following mixture.

Tincture of eucalyptus, 4 fluidounces;
Spirit of camphor, 2 fluidrachms;
Tincture of capsicum, 30 minims.

This mixture is taken at one dose diluted with an equal quantity of water, and from teaspoonful to tablespoonful doses of

tincture of eucalyptus are given concurrently with other medicine every hour until reaction sets in. Mustard plasters and the application of heat to the body are not neglected.

These remedies stop the vomiting, produce reaction, and aid in overcoming the toxemia. By stopping the vomiting the loss of serum by emesis is checked, but it is necessary also to check the enormous loss occurring from diarrhea.

To keep the blood serum where it belongs, in the blood-vessels of the body, and thus prevent shock and dehydration, the author used large quantities of tannic acid in a modified form. He used heroic doses, and has given the equivalent of 120 grains (7 8 grammes) of pure tannic acid in twenty-four hours with the happiest results, giving it in 10 grain (0.65 gramme) doses after every bowel movement. or, oftener 20 grains (1.3 grammes) every hour irrespective of bowel movement.

By stopping the loss of blood serum he controls the shock, which in his opinion is due in part to this loss. In fact, the patient is bleeding to death, not slowly, but rapidly, and in addition is also experiencing the terrible shock of the toxemia.

A great many patients promptly react as a result of this treatment, and then are attacked by suppression of urine, which often occurs at this time. To fight this he empioys the tincture of eucalyptus in addition to the digitalis and citrated caffeine, which also act as diuretics.

The most vital thing in the treatment at this point is the absolute prohibition of food for thirty six hours or longer. This prohibition must be absolute. The author has known a relapse to occur after eating a slice of orange or a teaspoonful of soft-boiled rice. Why this should occur he does not know, but asserts it is so. Vomiting and diarrhea at once recur, and the patient dies quickly. Many deaths occur at this stage, especially among the Siamese, who cannot be brought to understand that the symptoms will return if the smallest amount of food is taken.

The recovery is rapid unless complications occur. The writer has known cases in which the family informed him on arrival at the house that the patient was dead. Inside of a week the patient would be walking around, although very thin and feeble.

Annotations.

FRONTAL HEADACHE.

A heavy, dull headache situated over the brow and accompanied by languor, chilliness, and a feeling of general discomfort, with a distaste for food which sometimes approaches to nausea. can generally be completely removed by a two grain dose of the potassic salt dissolved in half a wineglass of water, and this quietly sipped, the whole quantity being taken in about ten minutes. In many cases the effect of these small doses has been simply wonderful. A person who a quarter of an hour before was feeling most miserable and refused all food, wishing only for quietness, would now take a good meal and resume his wonted cheerfulness. The rapidity with which the iodide acts in these cases constitutes its great advantage.

YOUR BEST AND WORST NERVES.

The most easily tired nerves in the body are the nerves of smell. They can detect the faintest whiff of perfume. As you pass a rose in the garden the quantity of perfume that gets into your nostril must be many millions of billions of times smaller then the tiniest grain of sand. But rub the strongest perfume on your upper lip, and in a few seconds you fail to notice it, the nerve of smell is so quickly fatigued.

The heat nerves and cold nerves, which are quite distinct from the nerves of ordinary sensation, also give over working very quickly. A bath that seems quite hot when you step into it very soon ceases to cause any particular feeling of heat.

Nerves of hearing and sight can go through an enormous amount of work. For sixteen hours a day they work hard, and are still willing to do more.

The nerves of the heart are the most untiring of all. From the first dawn of life until the last gasp they work without stopping for one instant. And even after death, if some salted water is pumped into the heart, it commences to beat again, showing that the nerves are still willing.

HURRY AND WORRY.

Hurry becomes a habit, so does worry; it is as impossible to throw off one as the other. The man who has been in a hurry all his life is no greater victim to the habit formed in his youth than the woman who continually worries. Every phase of existence can be turned into some excuse for worry. Household, social, religious and general duties worry, and they add to the burden of life until there is neither pleasure nor satisfaction in doing one's duty.

HOW THE "DRINK CURE" WORKS.

The inebriate who has been treated in the various specific cures for periods of from three to four weeks, and relapsed after each treatment, becomes discouraged. The family physician finally, who for the first time is consulted, sends him to a reputable institution. He brings with him all his bad experience and false conceptions of his condition and the methods for relief. He insists on having full liberty, and expects that some drugs will be given to prevent the drink craze. The application of rational treatment is regarded as of little value, and if tempted he relapses; after a troubled period of a few weeks he goes away severely condemning the manager and the measures used. Later he enters another institution, where he is given narcotics, and in four weeks goes out under the impression that he is cured. He relapses as usual, but finds out that he can be comfortable on drugs; then decides that all institutions are failures. The last stage of this man is worse than the first.

THE COMMON ERROR OF "MODERATE DRINKERS"

The inebriate who constantly reasons that he can stop at will and needs no external help, is in a delusional state and should be regarded with great suspicion. The president of a national bank, who had no scientific knowledge of the mental states following the use of spirits, demanded of the cashier in his bank the reason why he did not stop the use of spirits. The reply was that he could at any moment, and that he had full power to do so. The answer was, "Resign your position and leave the bank at once, and prove by a year's abstinence from drink that you possess this power, and we will take you back."

COPPER-POISONING.

Instances of poisoning by copper are comparatively rare. There have indeed been cases of copper-poisoning, both acute and chronic, but they are infrequent, and the symptoms are mild as compared with those of poisoning by lead, zinc, or arsenic.

The symptoms of acute copper-poisoning, by sulphate of copper, are those of an irritant of the digestive tract—a metallic taste in the mouth, nausea and vomiting, colic and purging, followed by fainting spells, perhaps delirium and convulsions.

The best antidotes for copper poisoning are milk and eggs, either separately or beaten up together. If these cannot be obtained at once soap may be given. It should be dissolved in water, but not given in the form of frothy suds, the air in which would unduly inflate the stomach.

In chronic poisoning occurring as an industrial disease the symptoms are mild, consisting chiefly of a metallic taste in the mouth, a blue line on the edge of the gums, sometimes ulceration and recession of the gums, leading to exposure and decay of the teeth. The teeth are often of a green colour.

"Brassfounders' ague" is probably due more to the poisonous action of the zinc than to the copper. The symptoms consist of a chill, with clamminess, followed by nausea and vomiting. The workers also suffer from bronchitis and asthma. Milk is the accepted remedy for this condition; but the use of inspirators by the workmen, ventilation of the shops, and strict attention to personal cleanliness are imperative in the prevention of further attacks and of chronic poisoning.

The fumes in smelting-works and emanations from the ashes removed from the furnaces are dangerous, as they are charged with oxide of copper, and may in time cause symptoms of chronic poisoning.

RATE AT WHICH INFANTS SHOULD GROW.

An infant should double its weight in six months, and treble it in a year, provided it is a healthy child and its nutrition is in every way satisfactory. If a child does not increase at the rate of one pound a month during the first year of life, and twelve ounces a month during the second year, its nutrition is not satisfactory. If a child does not grow nearly three-quarters of an inch every month during the first year of life, and half an inch a month during the second year of life, it is not satisfactory. The latter is, of course, not of the same importance as the former. Clearly, premature children would not be so large, though they should increase at the same ratio. If children grow very much faster, it may arise from over-feeding. A wise mother will guard against it.

In Pulmonary Consumption.

Dr. John's CONSUMPTION INHALATION. The Faculty pronounce it the only Cure for Consumption and all Throat and Lung Troubles.

Recommended as a certain remedy in the first and second stages. Is based on scientific reasoning and principles, and is an embodiment of the results of the investigations of Koch Luton and Pasteur, and all the great germ specialists, who have declared that the consumptive germ cannot live a minute in the presence of the ingredients of this wonderful compound. Write to-day. It is a sure cure. The first week's treatment will do more good than all the medicines, Cod Liver Oils, of changes of climate. Don't delay. There is not an hour to lose in cases of Consumption, or any throat or lung trouble. Even in the most advanced and hopeless cases of Tuberculosis and Consumption life is prolonged. Per phial Rs. 4. Packing and Postage 4 As.—Per dozen, Rs. 44.

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Avoid imitations: Only from Ellwood, & Co., Globe Chemical Works, Calcutta.

The Indian Lancet.

CALCUTTA : MONDAY FEB. 17th, 1908.

WONDERS IN SURGERY.

Surgery is making such progress, that operations considered impossible three or four years ago are now no longer regarded as exceptional. It has recently thoroughly revolutionized modern thought, and things transcending the brightest intellects of old are matters of commonplace Surgery to-day The outward march of this subject has opened up new vistas of experimental thought in the restricted mental horizon of the modern surgeon. The time seems fast approaching when surgeons will be able to attach an artificial limb to the body in place of amputated limbs. A step further, the day may in the near future come when they will find no difficulty in attaching a beheaded head to the trunk, provided the operation be carried out expeditiously enough. The prospective possibilities of the future surgeon is enough to make one dizzy and wonder when the limit of perfection, if ever, is to be attained.

UNVEILING OF THE PORTRAIT OF THE LATE DR. L. FERNANDEZ, M.D.

A most interesting ceremony took place in the afternoon of Thursday the 30th January 1908 at No. 3, Wellesley Street The College of Physicians and Surgeons of Calcutta.

The whole building was very tastefully decorated with streamers and evergreens.

There was no pain spared to make the College premises look quite pretty.

A large Bromide tinted enlargement of the portrait of the late Dr. Lawrence Fernandez, the Founder, and first Secretary of the Institution was hung up in the large lecture Hall on the 3rd flat and was kept covered with a silk veil.

At 4 P.M, the string band played a lively tune on H. H. the Maharaja of Durbhanga's arrival in his motor car. At the door H. H. was received by the Hon. Raja Peary Mohun Mukerji, of Utterparah and the members of the Executive Committee, along with their Veteran President Dr. G. Anderson.

H. H. was then taken round the Hospital and operating theatre and then led to the dais in the Hall, where the whole room was packed with friends and visitors and the student had to accommodate themselves in the verandah and side rooms. The vice-President garlanded His Highness.

The proceedings opened with the Secretary's report of the College, and a Persian poem from a Behar student. Then the vice-President, on behalf of the Executive Committee read an address of welcome to His Highness.

A few words of welcome from a student in English and a Bengali song terminated the first part of the programme. The address presented to H. H. was printed in satin and illiminated, enclosed in a very neat silver casket. The programme for use of the Maharaja was printed very artistically on silk

Then H. H. gave an address of appreciation of the life and work of Dr. Fernandez and in the warmest terms enlogized his indomitable energy and zeal in the cause of medical education, and pertinently referred to his religious life as the sousce of all the unqualified success that he was able to achieve in such a comparatively short span of life.

He deplored the premature loss of the Founder and concluded by anonncing his willingness to become a patron of the Institution and in a few chosen words of admonition to the students. H. H. then formally unveiled the protrait. The vice-President gave three hearty cheers on H. Highness's becoming a patron. Dr. N. N. Dey proposed a cordial vote of thanks to the Maharaja, seconded by Dr. K. Ahmad.

Raja Peary Mohun Mookerji also thanked the Maharaja in suitable words. The proceedings concluded with the National anthem. His Highness was pleased to give a generous donation towards the funds of the Hospital.

Current Medical News.

INOCULATION AND PLAGUE.

About fifty editors of up-country newspapers visited the Bombay Bacteriological Laboratory at Parel on the invitation of H. E. Sir George Sydenham Clarke. The editors formed quite a cosmopolitan gathering, representing Mahratta, Gujerati and Parsee papers of the different divisions of the Presidency. The editors, were in two batches, were taken round the various rooms in the Laboratory—the kitchen in which the broth is prepared, the Sowing and Testing room, the Incubating room, and the rooms where the anti-plague vaccine is carbolised, the bottles are vacuumised and the vaccine is decanted. Captain W. Liston, acting Director of the Laboratory, who took the editors round the rooms, explained to them the process of preparing the anti-plague vaccine and the use of it, and they seemed deeply interested in what they saw there. The editors were then taken to the verandah, where they awaited His Excellency's arrival.

His Excellency was received by Captain Liston and others. Captain Liston then addressed those present. He said the attention of the editors and representatives of up-country papers had been drawn to various improvements effected within the past four years. He desired to emphasise the fact that what they had been shown that day was not the product of a day but the result of more then ten years of patient study. The process of manufacturing the anti-plague serum had been evolved after great experience. There was no doubt that defects had sometimes been detected, unfortunately after lamentable accidents, but those trials had always resulted in a mintue inquiry into the method of manufacture and had in each instance led to improvements which had prevented the repetition of the unfortunate occurrences, till at last they were in a position to say that the process of manufacturing the vaccine was as perfect as it was humanly possible to make it with the knowledge they possessed. The method of manufacturing the vaccine had been examined by a large number of expert scientists and they had approved of every detail of the process. In inoculation they had the best, the simplest and the cheapest means of combating the plauge in a country like India. He was not prepared to say that inoculation would permanently eradicate the disease from India, but he could affirm that it could say and had in the past saved thousands of valuable lives. During an epidemic of plague there would be three times fewer attacks from plague among the inoculated than among the uninoculated, and if the inoculated were attacked by the disease they were twice as likely to recover as the uninoculated. Three questions had often been asked of him by those who were about to be inoculated. The first question was if they could come to any harm in being inoculated in the midst of plague—that was, when dead rats had been found in the house in which they lived. The answer was in the negative. They would perhaps have come too late to expect the best results from inoculation, but it was better to be protected late then never. Day by day they were learning more about vaccines and their use in the prevention and treatment of disease. They were all familiar with Jenner's vaccination, and those of the editors who were doctors must be aware that even if they were vaccinated against small-pox, even one or two days after exposure to infection, the vaccinated not only had a better chance of not developing the disease but if they developed it the disease was likely to attack them in a milder form. People suffering from hydrophobia did not undergo the treatment till after they had been infected, and it had been shown that the treatment with anti-rabbies vaccine was effective in warding off an attack from that fatal disease, The same principle, held good for anti-plague vaccine. No harm, then, would be done if inoculation was carried out even in the midst of plague. The next question usually asked of him was about the length of time during which inoculation gave protection. It depended firstly, on the dose of vaccine used; secondly on power the individual had of responding to a particular dose; thirdly on the circumstances in which the individual was found at the time he was exposed to infection, as fatigue, alcoholic excess, exposure to cold, all lowered the degree of the resistence of an individual; and fourthly, on the dose of infection which he had received. On the whole it could be said that the maximum degree of protection lasted for a period of six to nine months, that after that time it became less, but still some degree of protection remained in even up to the fifth year. They got the best protection by being inoculated every year. He also was asked if inoculation did any harm. The answer again was in the negative. It was impossible that a sterile fluid containing no living disease producing genus could convey disease.

The Governor's Speech.

His Excellency the Governor then said:—Gentlemen,—I have come here to offer you a very cordial welcome to Bombay. It is great pleasure to find that so many editors of the press in the Mofussil have been enabled to accept my invitation and to see for themselves how anti-plague serum is manufactured in this city. I hope that you will carry away not only the pleasant recollection of your trip to Bombay, but also some information which will be of permanent value. They are two points to which I desire to draw your special attention, and you will have noticed that most elaborate precautions are taken to ensure that the serum is absolutely sterilized and that there can be no contamination from any outside source. That is a very important point. The second point is that by injecting the sterilized serum into the system we do not communicate the disease but the only protective agent which comes into play if the body is attacked by the plague bacillus. That is why I point out to the doctors from the Native States that inoculation is a bad word to use. Inoculation certainly conveys the idea of communication of diseases, which is exactly what the injection

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of serum does not do. If you can make that fact clear, you will do a very valuable service to the people. Since I came to India I have been doing my best to advocate the use of this serum because I am convinced that it provides us with the only method of combating the outbreak of plague, promptly and effectively. The plague visitation falls mainly upon the poor and the helpless —the people for whom you and I ought to care most. You will all feel with me that nothing can be so sad and painful as the spectacle of preventive suffering and among the helpless poor. I do not for a moment suggest that you should advocate the use of serum unless you are persuaded that it is the safe and effective method of protection. What you have seen here and the figures which will be given to you, will, I hope, carry this conviction of the success of the inoculation to your mind. I wish particularly to express my thanks to Khan Saheb Maneckji for offering himself for serum treatment for the ninth time. His public spirit will enable you to judge how simple the operation is; and you will agree that his experience shows that the effect of many successive treatments need not be dreaded.

You all know that His Majesty the King Emperor sympathises warmly and deeply with the sufferings of his Indian subjects from the ravages of the plague. I wish to be able to tell His Majesty that we, in the Bombay Presidency, are all working together to do what is possible to save the lives of the poor; but I hope for something more from this present informal gathering. It seems to me most important that you and I can understand each other. We may sometimes differ in our views as to what is best to be done. That is only natural and inevitable, but the point I want to lay stress on is that we have one and the same object at heart. (Applause.) You living your lives in this country desire, I know, to work for the benefit of the people of India. I have broken off my life in England only because I hope to be able to do good to the people in this country. (Applause.) Surely, therefore, we may somestimes co-operate and even while you may not always agree with me, I ask you not, to forget that my object is the same as yours (Hear, hear.) The power of the press is growing in India. This power carries with it a heavy responsibility in all countries, but most especially here, where the masses have few or no other sources of information. I appeal to you to take your responsibility seriously. You can do a great and important work in helping to educate the people and giving them information to assist in promoting improved methods of agriculture and in fostering the industries which we are all anxious to develop. You can teach them self-help, proving the words of the great Indian law-giver Manu "Depend not upon another; rather lean upon thyself. Trust to thy exertion." These words apply to all people as perfectly to-day as when they were written 2400 years ago. I have had considerable experience in journalism and I know the temptation of writing out criticism without waiting till all the facts are available. That is a temptation which one should resist, and I venture to ask you to ascertain facts before you commit your information to the paper. Truth is not always palatable, but it endures, and every truth which you tell yours readers is a gain to them. On the other hand, what is false may inflict permanent injury upon those who receive it and must reflect dishonour on those who disseminate it. When you are sure of facts, by all means do criticise. All Governments make mistakes and constructive criticism is good for them as it is for an individual. A vilgilant and accurate press can be a great help towards good government. In saying this I trust you will not think that I am giving you a lecture. All I hope is that, after this present gathering, we may understand each other and that we may sometimes be able to co-operate for the good of the people. (Loud applause.)

Mr. B. G. Tilak, editor of the "Kesari" of Poona, on behalf of himself as well as other brother journalists, begged to convey to His Excellency their most heartfelt thanks for the honour which he had done them by inviting and giving them an opportunity of inspecting the interesting and instructive process by which the prophylatic serum had been manufactured. He was sure they had all witnessed the remarkable progress and improvements introduced in the preparation of the serum as suggested by scientific researches in recent years. Every precaution which science and ingenuity could suggest was adopted in a progressive spirit. He meant by this to say that every possible defect that might creep in had been guarded against, and throughout the process every possible contingency against contamination and foreign substance had been carefully considered. They were astonished to see the accuracy and care with which the serum had been prepared. But there were other aspects of the question, and that was not a place where it could be discussed. Yet he could confidently say that in the work of relieving the poor people from the calamities attendant upon the dire scourge, His Excellency must rest assured that the sympathy of the people would be with him. There could be no doubt that Government was actuated with the best of motives for relieving the sufferings of the masses. There might be differences of opinion, but exchange of ideas and the friendly intercourse would, in time, enable the Government to achieve the object which they as well as the public had at heart. He trusted that the exchange of confidence and their joint efforts would, in time, succeed in eradicating the plague—the worst enemy of mankind—from India. In conclusion he again offered their cordial thanks to the Governor for the great honour His Excellency had done them by inviting their co-operation in popularising inoculation.

Captain Liston then said he had much pleasure in inoculating Khan Shaeb Manekji Chandana, who had offered to be incolated for the ninth time before the up-country editors.

Khan Shaeb Cnandana was then inoculated before the meeting. An up-country journalist also offered, and was inoculated immediately after. His Excellency the Governor then shook

hands with all the up-country journalists present. The proceedings then terminated.

DEATH IN THE PAN.

Lead Poisoning Dangers In Culinary Ware.

A Special report on "dangerous or injurious proceeses in the coating of metal with lead or a mixture of lead and tin" has been issued by the Home Office. It has been prepared by Miss M. A. Anderson, principal Lady inspector, and Dr. T. M. Legge, medicial inspector of factories, and is of interest, not only to the trades concerned, but to a wider public.

In the first place it is recommended that the addition of lead to the covering mixture in tinning of iron and metal hollow-ware should be prohibited. Prohibition meets also the danger constantly pointed out from a public-health point of view that common tinned utensils may constitute a danger to the consumer."

The use of lead in the enamelling of culinary vessels has already been voluntarily given up by manufacturers, "confronted, as they were and are, with the enormous importation of German enamelled hollow-ware, in which use of lead is, by German law, restricted." The inspectors, however, have been unable to discover whether there is any importation of "common tinned" culinary vessels into this country. But there is such importation of bright tinned culinary articles, which are brought in from France and finished here.

Under these circumstances it is recommended that a time limit be allowed before the prohibition of lead shall take effect the date suggested being January 1st, 1909. In the meantime certain regulations are proposed as precautionary measures for both employers and employed to prevent lead poisoning.

Striking statistics are given as to the occurrence of lead poisoning among the operatives engaged in various industries where the lead and tin mixture is used. In the four-year period 1899-1902 the number attacked in the hollow-ware branch was 29 (15 male and 14 female), and in the period 1903-6 it was 35 (13 male and 22 female); in the iron drum and keg branch (all males) the figures were 11 and 24 respectively; and in the harness furniture branch (all males) 8 and 7 respectively.

"In the tinning of hollow-ware," continues the report, "the severity of the attacks exceeds that noted in other tinning processes, and greatly exceeds that of the total lead poisoning cases for the years 1901 to 1904. The proportion of slight cases among men (10·7 per cent is without example in our experience in any lead industry. Third attacks or chronic plumbism among females engaged in the tinning of hollow-ware is nearly five times as frequent as among females employed in lead industries taken as a whole. This is the more remarkable when the age of the women workers is borne in mind. Chronic plumbism among harness furniture workers also greatly exceeds the average."

In a separate report Mr. G. A. Duckering, another inspector who made an experimental investigation, states that no evidence of lead absorption was to be found among terne-plate workers and the proposed regulations do not apply to their manufacture.

ONE VITAL WARNING.

Tramps as disseminators of contagious diseases have not received the consideration that the subject would justify their filthiness offers a rich field for the propagation of bacterial organziations and their peripatetic nature makes them carriers of contagion in dangerous degree. Their loathsomeness prevents personal contact to any considerable extent, but their herding together for sleeping in out-houses, barns, etc., and their frequent stay in jails and the town calaboose for a night's lodging all add to the risk of leaving some contagious disease or parasites in their wake. Attention has been called to this danger and if others of the lay press would do likewise good would be accomplished.

SHORT ITEMS.

The new hospital, under construction in Purnea jail, which was sanctioned at the instance of the Inspector-General of Prisons, is, it is understood, estimated to cost close on Rs. 30,000 The building will provide wards for thirty-two beds, besides an office and dispensary.

The authorities of the Madras General Hospital where Lieut-Colonel H. J. W. Brownrigg, R. E. is an in-patient, have recommended that he be placed before a Medical Board with a view to his being granted leave to Europe on a medical certificate

Advices from Jeddah state that the Haj has finished. It is reported that the average number of deaths from cholera among the pilgrims has been 200 daily.

The German Colonial Society offers a prize of £300 for the cure of the tsetse fly infection.

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Is the only purgative water the use of which is unaccompanied with disadvantages in genito-urinary diseases.

Relieves women suffering with hemorrhoids and diseases of the uterus and ovaries, by reducing the congestion of the pelvic viscera.

Re-establishes the normal flow of bile, and is thereby a prophylactic in cases of biliary colic, due to the passage of biliary calculi.

Is indicated in cases of flatulency, bilious attacks, eczema, glandular enlargements and scrofula.

Benefits chronic nervous conditions, atony of the stomach and intestines, certain forms of diseases of the heart and circulatory system, chronic cases of skin affections and certain diseases of the lungs.

If used regularly alone, will often suffice in cases of influenza, diarrhœa, malaria, gastric and febrile disorders and infectious diseases by enabling the engorged, digestive, circulatory and lymphatic systems to regain their normal condition.

Acts in trifling doses. One small wineglass taken on an empty stomach immediately before breakfast produces a well-marked laxative effect in an adult. The dose for women or children should be reduced to one-half or one-third.

Is now considered an indispensable mineral water, especially in large city practices where it is important to husband the patient's strength, under penalty of their developing anæmia, or breaking down under the nervous strain and becoming neurasthenics.

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Current Medical Literature.

MEDICINE.

DILATATION OF THE STOMACH, ACUTE.

Attention is called by the writer to the necessity of making an early diagnosis of this condition, which, unless recognized in time may lead to very serious results. The four cases which he reports, serve as a basis for a brief discussion of the subject and its treatment. The symptoms are marked by the appearance of sudden and severe vomiting, accompanied by more or less pain in various parts of the distended abdomen. The pulse is small and rapid, but there is no rise of temperature. The absence of the latter is important, because by this sign the condition may be differentiated from a peritonitis. Another sign of value is the presence of evidences of a localized collection of fluid on the left side of the abdomen. The writer finds that among sixty reported cases, a correct diagnosis was made in only thirteen instances, and this usually by men who had previously treated the condition without having recognized the true state of affairs until an autopsy was made. The author thinks that the diagnosis can best be confirmed by the introduction of the stomach-tube.

The prognosis, unless correct treatment is instituted, at once, is bad. The mortality in the 64 cases which have been published, is 47.

The first point in treatment is to favor the evacuation of the stomach, which is best accomplished by placing the patient in an elevated pelvic position. During the first few days, gastric lavage should be regularly done, and no food is to be given by mouth until the stomach has recovered its tone. The necessary fluids may be provided by the administration of normal salt solution subcutaneously or by rectum. Nutrient enemata are also indicated, and the heart must be properly stimulated. This form of gastric dilatation is also apt to be complicated by disturbances in the duodenum, marked by distention of this organ brought about by the tension of the mensentery. This also involve other portions of the gut, and will be relieved by also the treatment directed towards the gastric condition. If this is in effective, then a laparotomy is indicated. Neck (Munchener medizinische Wochen-scnrift.)

THE DIAGNOSIS AND TREATMENT OF FALSE DIABETES.

Lebeaupin (Journal de medecine et de chirurgie pratique) recommends that practitioners should not be satisfied with a single examination in order to affirm the existence of diabetes mellitus. Alimentary glycosuria may occur in numerous people, without polydipsia, without polyphagia, and without polyuria, and without any organic lesion. The urine remains normal in quantity, and in density. Its acidity is greater, and the proportion of sugar small. The diagnosis is of importance, especially in young persons with joint affections, since the prognosis has not the gravity of that of a true diabetes. The severely rigid, classical diet of true diabetes is necessary in these patients; especially, the hydrocarbons are not excluded, because these aliments are indispensable to life. If the glycosuria is grafted on an arthitic diathesis it is necessary to be very careful to avoid a meat diet. The alkalies should be the basis of the medicinal treatment. If there is a nitrogenous diabetes, arsenic gives the best results. In digestive diabetes, a meat diet should be allowed, and starches should be replaced, as much as possible, by fats. This form occurs particularly among women who indulge freely in pastry, chocolate, etc.; it is very difficult to make the patients change their habits because food is poorly digested. In nervous glycosuria, the potassium bromide, the antispasmodics, and narcotics are prescribed.

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SURGERY.

ABDOMINAL OPERATIONS, TRANSVERSE INCISIONS IN.

(Dr A. E. Rockey, Med. Record, Nov. 11, 1905.)

Dr. Rockey makes use of the transverse incision, which is already widely used when the abdomen is to be opened in the medium line, in operations on the appendix and caecum, in exploratory laporatomies on the right side, in colostomies and resection of the colon on the left side. An advantage of the transverse incision is that it lies parallel to the natural wrinkles of the abdomen. In appendicitis unruptured or during the interval, he advocates a transverse incision having its centre crossing McBurney's point and less than an inch and a half in length. A two-inch incision may be necessary in fat subjects. Should a larger incision be found necessary extension is made toward the median line.

HÆMOPHILIA.

Dr. Groves reports three cases of hæmophilia which exhibt some of the surgical aspects of the disease, especially the rare condition known as Volkmann's contracture of the fingers. This contracture of the fingers is caused by pressure on the muscles of the forearm, depriving them of blood. Some of the fibers of the delicate and highly organized striated muscle then die or undergo rigor mortis, and are replaced by fibrous tissue, or rarely, by bone (myositis ossificans). This causes contracture, wasting, and pseudoparalysis. There is also some actual shortening of the bones which is difficult to account for; it may be due to lessening of the blood supply to the bone. From a surgical point of view the treatment of hæmophilia may be summarized as rest and pressure. When the joints become swollen they should be firmly bandaged and kept at rest until the effusion subsides. It is by neglect of this treatment that the ligaments become stretched and weakened, and the changes of osteoarthritis. For the external and bleeding do nothing but keep the patient in bed. No remedies, local or general, have any effect upon the hæmorrhage, and therefore it should be left alone and attention turned solely to treating the patient's general condition. If this rule was always followed from the commencement of the bleeding, probably many lives would be saved.—New York Medical Journal.

THE TREATMENT OF PSEUDARTHROSIS AND DELAYED CALLUS FORMATION BY INJECTION OF BLOOD.

V. Schmieden reports that since the first publication by Bier on injections of blood in delayed union of fractures and in pseudarthrosis, he has so treated seven cases in four of which the treatment has not yet been concluded. He discusses Bier's views of his method. The extravasation of blood and in a more marked degree the presence of blood from different human beings or animals is, after the trauma itself one of the most potent stimulants for the formation of callus. The blood is used without any changes. Direct nutrition of the callus by the blood has not been finally proved. This stimulation can only be successful where bone formation is possible. The older pseudarthroses responded only very slowly. The technic is difficult and the injection needs to be repeated many times. The periosteal callus formation leads to success where there is no union possible between the ends of the fragments themselves. Perhaps the connective tissue in the neighborhood of the bones has some power of callus-formation. (In myoritis ossificans there is no pereosteum present). The injections are to be repeated again and again in rapid succession if no result is at once shown. Unfavorable symptoms have not been observed. High pressure is needed for these injections for which a special syringe has been constructed.

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OBSTETRICS.

INTERNAL AUTO-INTOXICATION OCCURRING TEN DAYS AFTER AN APYRETIC ABORTION: MANIFESTED BY VIOLENT CHILL AND A TEMPERATURE OF 40° C.

Ozonne and Josephson report the following case: On May 22, J. G., aged 20 years, was admitted at Saint Lazare, for syphilitic mucous placques and deep ulcers of the vulva. Examination revealed a four months' pregnancy. Rapid improvement followed injections of benzoate of mercury two centigrammes daily for 12 days. The woman aborted April 14th. It appeared that portions of the placenta remained and daily vaginal irrigations were employed. April 17th, an intra-uterine injection was given of five liters of a 1-4000 solution of sublimate for the removal of remaining debris. The temperature ranged from 36.6 to 37.2 degrees C. This treatment was kept up for two days more during which time the temperature returned to normals On April 24th, the patient was seized with the violent chill followed by a temperature of 39 degrees C.; the pulse was 130. During the day two intra-uterine injections were given, each of 1,000 grammes of artificial serum. Cold baths were ordered. The next day the temperature rose to 40.3 degrees C.; the pulse to 110. The abdomen became slightly distended but there was no pain and no evidence of uterine or periuterine complications. Injections and baths continued. During the day there were a number of fetid discharges from the bowel. In the evening the temperature had fallen to 39.8 degrees C.; pulse to 100. The next morning, April 26th, the temperature was 37.3 degrees C.; the pulse 80. The patient had a number of bowel movements and was entirely well at the end of 48 hours. She left the hospital May 10th. The case was believed to be one of auto-intoxication due to coprostasis.

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During a discussion at the Academy of Medicine, New York, May 10, 1894, the Professor of Diseases of Children in Bellevue Hospital Medical College, DR. J. LEWIS SMITH, M.D., said that NUTROLACTIS had been found to decidedly increase mother's milk in two institutions with which he was connected.

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PATHOLOGY.

THE PATHOLOGIC FINDINGS IN A CASE OF PEMPHIGUS FOLIACEOUS.

The pathologic findings in one of Doctor Corlett's cases of pemphigus foliaceous are here briefly recorded, it being understood that no attempts at generalisation are made.

The details of the clinical history may be omitted. Mention should, however, be made of the occurrence of mental symptoms about 48 hours before death. The patient became unconscious and died in coma. Lumbar puncture, performed about 24 hours before death, withdrew a clear blood-stained fluid, but the possibility of injury to a vessel could not be excluded. The cause of the development of mental symptoms, as well as of the presence of blood in the spinal fluid, will appear from a review of the changes found at autopsy.

The body was extremely emaciated. The skin lesions were all advanced. None contained fluid. They were slightly congested, somewhat indurated, their surfaces covered with epidermal scales. They were present in greatest numbers upon the sides of the face, the ears, and the dorsal surfaces of the hands and feet. Upon the ears and the sides of the face lesions were confluent.

As so often happens in cases of this disease a terminal bronchopneumonia was present.

The spleen was considerably enlarged. The Malpighian bodies appeared as well-defined, opaque, yellowish nodules one to three mm. in diameter.

The mesenteric lymph glands were enlarged, firm and congested. The hilum of ths spleen was united to the tail of the pancreas by a mass of chronic inflammatory tissue which contained enlarged lymph glands, one of which showed coagulation necrosis.

Examination of the brain revealed an extensive subpial and interconvolutional cerebellar hemorrhage, and an area of capillary hemorrhage in the white matter beneath Broca's area.

The anatomic diagnosis was as follows: Pemphigus foliaceous. Subpial cerebellar hemorrhage. Capillary cerebral hemorrhage. Hypertrophy of the spleen. Hypertrophy and congestion of mesenteric lymph glands. Coagulation necrosis of mesenteric gland. Bronchopneumonia. Localised encapsulated tuberculosis of lung. Chronic tuberculosis of bronchial lymph glands.

The bacteriologic examination was negative. Cultures were taken from the heart's blood, the liver, the spleen, and the kidneys. All remained sterile except one tube inoculated from the heart's blood. The development of a colony of Staphylococcus albus on this one tube is believed to have been a contamination.

Certain of the microscopic findings are interesting because of their nature and their similarity.

Sections of an earlier skin lesion show thickening, irregularity and desquamation of the horny layer. In places the epidermis is thinned by the presence within and beneath it of areas of cellular infiltration, made up of lymphocytes, fibroblasts and dilated thin-walled blood vessels. The epidermal cells about such areas are degenerated. The fibers of the cutis are swollen have lost their nuclei and have a homogeneous hyaline appearance.

In later lesions the epidermis is thin and its surface is irregular. Extending deeply down into the cutis is a wedge-shaped area of hyaline fibrous tissue, through which run several bands of cellular tissue. The latter is made up of fibroblasts and wide thin-walled blood vessles. Lymphocytes are present in small numbers.

In the skin lesions one finds numerous round chromatin bodies from one to three microns in diameter. Many have a narrow rim of protoplasm. Some have a large nuclear mass at one side and a smaller chromatin dot at the opposite side. In some of the bodies several (from three to six) chromatin masses are present.

The mesenteric lymph nodes show a condition of diffuse hyperplasia of the stroma. The blood vessels are dilated and filled with blood. Hemorrhage is present. Some of the fibers of the stroma are swollen and hyaline. The normal subdivision of the gland into follicles has been lost, and very few small lymphoid cells are present. The tissue has the appearance of granulation tissue rather than that of lymphoid tissue. Many of the blood vessels are apparently newly formed.

The necrotic mesenteric gland shows, in its non-necrotic portions, the same changes as above noted, except that the hyaline degeneration of the stroma is more marked. The greater portion of the gland has undergone coagulation necrosis.

Examination of the spleen shows the Malpighian bodies to be made up almost wholly of large cells. Only about the periphery is there a very narrow zone of ripe lymphocytes. Hyaline change is seen in the fibers of the reticulum and in the blood vessel walls.

The small blood vessels in the region of cerebral hemorrhage show hyaline degeneration of their walls. Some are surrounded by a narrow zone of nuclear degeneration. In others the vessel wall has entirely disappeared. In a few vessels a small amount of fibrin is present. The vessels of the cerebellar pia show identical changes.

About the changed cerebral and cerebellar vessels, in the mesenteric glands and in the spleen chromatin bodies, like those noted in the skin, are present.

The chief question in this case is that of the association or the independence of the skin lesions and of those present in the

internal organs. The similarity of the nature of the change must lead one to the conclusion that the skin lesions and those present in the lymph nodes, the spleen and the brain are part of the same pathologic process. The hyaline degeneration, the vascular changes and the chronic inflammation are everywhere identical.

The disease, in this particular case, is characterized by changes in the skin and in certain of the internal tissues of a degenerative and inflammatory character.

As yet, nothing definite can be said concerning the nature of the chromatin bodies seen in the various lesions. At first glance they look like nuclear fragments. Attention should, however, be called to the similarity which some of them, especially those with a larger and a smaller chromatin mass lying in a well defined protoplasmic body, bear to Leishman-Donovan bodies.

——:o:——

THERAPEUTICS.

THE IRON AND ARSENIC TREATMENT OF THE PRETUBERCULOUS STAGE.

Is advocated by Shurley, because of the almost invariable coincidence of a chronic form of anemia. He gives the drugs hypodermically, and reports most excellent results. The important matters, nevertheless, are rest, food and cold air. Tyndale is quoted as saying "that localized tuberculosis does not endanger life of itself, so long as the general nutrition begets a reasonable resisting power of the pulmonary tissues."

Patients must be informed that they have overdrawn the bank account and that they must reduce expenses and increase the deposits. "Rest up, live in the open air, and eat, eat, for God's sake eat!" There is no reasonable doubt that followers of the Yale theory of economy are running the risk of developing this pretuberculosis condition of poverty.—American Medicine. J. A. S.

TREATMENT OF ACUTE ARTHRITIS WITH INTRAVENOUS INJECTIONS OF COLLARGOL.

G. Riebold. Innumerable cases of acute and subacute arthritis are very rebellious to treatment. For example, there does not exist any specific treatment for gonorrheal arthritis. Above all, acute rheumatism ofttimes resists the salicylates. Even Bier's treatment may fail, and symptomatic treatment remains as our last recourse. In these difficult cases, Riebold resorted to intravenous injections of collargol.

In fifteen cases of varied articular affection, he obtained a complete cure in ten cases, and considerable improvement in four. Among these patients there were seven cases of gonorrheal rheumatism, two of acute rheumatic polyarthritis, four of subacute articular rheumatism. In all the cases, the pain diminished in two, three, or at most, twelve hours after the injection.

The general condition improved, and the sufferers succeeded in getting some sleep.

The influence of the collargol on the articular swelling was notable. Complete mobility was restored after the disappearance of the pain and swelling; and, in cases where grave lesions existed, the treatment gave magnificent results, stopping the pain that rendered any motion impossible. The temperature fell considerably during the day or two following the injection, and it continued normal after two or three injections.

Riebold employed a two per cent. solution, of which the injected eight cubic centimeters at the first injection, and six or eight c. c. in subsequent ones. The efficiency of the remedy depends on the dose. The frequency of the dose varies according to the case. It is advisable to repeat the dose as soon as the pain and swelling return. Riebold generally uses three or four injections, sometimes five or six, in order to secure a lasting result. Meanwhile, local treatment need not be overlooked.

The injection should be painless; pain indicates that the collargol has penetrated to the perivascular tissue. The technique is very simple, and can be repeated two or three times at the same spot. The injection may prove to be a little troublesome where there is a very thick panniculus adiposus. An intravenous injection, when well done, does not give rise to unpleasant accidents. It should never be done rapidly, otherwise it provokes cough and dyspnea; and the injections should never be given in very large doses, which latter would cause elevation of temperature with rigors and sweats. Intravenous injections of collargol are almost a specific against gonorrheal rheumatism.—Novidades Medicase Pharmaceuticas.

TOBACCO: ITS EXPERIMENTAL EFFECTS UPON THE NERVOUS SYSTEM.

Dr. Pierce Clark, of New York, says that the poisonous effects of tobacco depend on nicotine, pyridine, and a number of other alkaloids which have not been thoroughly studied as yet. Tobacco has a permanent and definite effect on the nervous system only after years of use. Experiments have been made on producing a tobacco that does not contain nicotine, and this is not found to be so poisonous, while not as satisfactory to the smoker. The author sums up the results of experiments on animals as to the effect of tobacco on the nervous system thus: Tobacco is primarily a cardiovascular poison; its acute toxic effects on the neuromuscular apparatus are, first, as an excitant and mild convulsant; second, a motor nerve depressant, and finally, as a paralyzant of the central and peripheral nerves of the heart and lungs. Its chronic toxic effects are to produce congestion of the brain, spinal cord, and peripheral nerves, inducing a mild type of degenerative neuritis. The toxic coefficient is so variable as to make definite conclusions with reference to its effects on man hard to reach.

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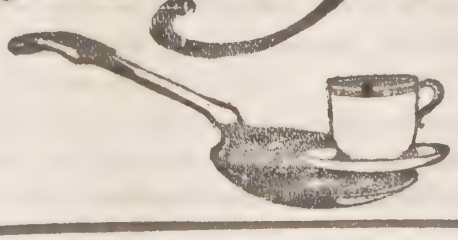

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The Executive Committee solicit public support to enable them to fully and more fittingly carry out the objects of the Institution, more especially of the attached Hospital and Dispensary. The College, with its connected departments, have been maintained, in the past, partly from the fees of the pupils which is quite inadequate for the purpose. The expenses connected with the upkeep of the Hospital and Dispensary are enormous.

Funds are urgently required

1. **For medicines, surgical instruments, bedding, diet and other hospital necessaries.**

2. **For building a Hospital which, unlike the present building, will be the property of the College. For the "Hospital Building Fund" subscriptions and donations are specially solicited.**

Gifts of clothing, bedding, suitable furniture, furnishings, medicines, surgical instruments, microscopes, pathological and other specimens, medical books and medical journals (old or new) for the library, articles of food (suitable for European and Native patients, etc.), will be thankfully received.

The Members of the Medical Profession, in India, are respectfully asked to co-operate and help, as much as lies in their power.

All communications and remittances to be sent to—

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Audi Alteram Partem.

THE NATURE OF X-RAYS.

To the Editor, The Indian Lancet.

SIR,—A few months ago physicists were, in their own minds pretty well satisfied as to the nature of the X-rays. Many phenomena exhibited by them combined to produce the belief that the rays were electro-magnetic pulses in the ether—in other words, that they consisted of disturbances of the ether, closely approximating in character to solitary waves in water. If the fall from the crest to the trough of the wave took place rapidly the pulse would be described as "thin." Such thin pulses were supposed to constitute the rays from a "hard" tube, and to be very penetrating, while those in which the fall was more gradual—the "thick" pulses—were supposed to be the rays from a soft tube. The theory of these pulses had been carefully worked out by Sir G. Stokes and by Professor J. J. Thomson. It had proved adequate to explain much of the behaviour of X-rays, and very little doubt was felt that it would ultimately account for the rest; in short the nature of the rays seemed to have been well ascertained.

The recent work of Professor Bragg, of Adelaide, has upset all this and thrown our theories respecting the rays back into the scientist's melting-pot. A careful examination of several sets of experiments, by different workers, has convinced him that their results are inconsistent with any theory which ascribes the rays to pulses in the ether, and has led him to propound a new theory, in which they are ascribed to small particles of matter, shot off from the platinum plate in the Crookes tube with very high velocities. It appears that in one of the latest researches on X-rays, the observer claims to have proved that the speed of the rays is the same as that of light; if his claim were well made out, it would be of extreme importance, as it would go a long way towards demonstrating the identity of the rays with ether pulses; but Professor Bragg points out that his method of experimenting, so far from telling us anything about such pulses, goes to prove that the bodies whose speed he was trying to measure were not really ether pulses at all. The argument is too abstruse for reproduction here; suffice it to say that Bragg has made out a very good case.

If the new theory be right, it will account for a great deal which the previous one left obscure. As every physicist knows, the X-rays have many properties in common with the rays from radium; they ionise the gases through which they pass, they have a great photographic activity, and produce chemical actions in the substances which they traverse, quite like those of radium rays, which everyone supposes to be small particles of matter. There is, however, one well-marked difference; the radium rays are strongly deflected by a magnetic field showing that they consist of particles carrying an electric charge, while the X-rays show no such deviation. The professor suggests therefore, that the particles which constitute the X-ray are uncharged, consisting of an "alpha" particle combined with a negative electron, the electro charges of the two being equal, and therefore neutralising each other.

In his paper, Professor Bragg brings forward a great deal of argument in favour of his new theory, though it cannot be said to amount to a complete demonstration of its validity; on the other hand he has inflicted a very damaging blow on the ether pulse theory which he has gone a long way towards disproving. His ideas are very attractive, as, if true, they would unify the theory of radio-activity.

Yours etc.,

W. G. L.

MALARIA IN THE DOOARS.

To the Editor, The Indian Lancet.

SIR,—We have received copy of an interesting lecture delivered by Dr. Charles A. Bentley to the Dooars planters on malaria. The lecturer is engaged in the inquiry into Dooars' Black-Water Fever and Malaria, and his remarks have therefore more than the ordinary value. He has dealt with the genesis of malaria from the days of Varro, 118 B. C.; its pathology, how contracted, the relation of the mosquito to malaria, its prevention, and the destruction of the malaria parasite. He has dealt at length of the methods of quinine administration, and in fact everything connected with the subject. He makes a practical appeal to practical planters in connection with the effects of malaria on the tea garden labor force and the loss it entails. For example he says: "In 1904, Celli estimated that in Sardinia alone 16 million days of labor were lost owing to the ravages of malaria. Have any of you tried to estimate what loss occurs upon your gardens from this cause!" The lecture is an eminently practical one, and copies of it should be in the hands of every planter throughout the Dooars, Assam, Cachar, Sylhet, and Terai districts.

Yours etc.,

DION.

THE PASTEUR TREATMENT.

To the Editor, The Indian Lancet.

Sir,—The current number of the Humanitarian gives publicity to two important letters on the subject of Pasteurism in India, from which I venture to make the following extracts for the information of your readers:—Sir J. H. Thornton, K. C. B., the writer of one of the letters, is a retired Surgeon-General of the Indian Medical Service, who served through the Indian Mutiny campaigns, and was five times mentioned in despatches. This is what he says in the Humanitarian:—

"For fully twelve years I had medical charge of a large district with nearly two millions of inhabitants. Six dispensaries in different parts of the district were under my control, and at these institutions many thousands of cases of diseases and injuries (including many cases of dog bite) were treated annually. Yet with all this large experience I never saw or heard of a single case of hydrophobia in a native of India."

Sir James Thorton goes on to point out that the Pasteur treatment has in some cases produced the very disease which it was intended to prevent, and asserts that there is no evidence to show that it has averted hydrophobia in a single instance. He says that the Pasteur anti-rabic treatment is not only unsound in theory, but useless and dangerous in practice, in which opinion he is supported by the late Professor Peter, Dr. Lutaud, Dr. Bell Taylor, etc.

The writer of the other letter is Dr. Louise Appel (B. Sec., R. B., B. S. (London), who has spent years in India. She says that "the disaffection which is growing up in India against the establishment of Pasteur Institutes is founded upon the religious traditions of the vast masses of the Hindu population . . . . Pasteurism and Vivisection are wholly alien to Hindu thought and run counter to the spirit of the old traditions—hence the growing disaffection among Hindus and the danger of planting Pasteur Institutes in India."

Further information and a copy of Sir J. H. Thorton's pamphlet on the Pasteur treatment can be obtained free of cost from Mr. J. Collinson, Honorary Secretary Indian Humanitarian Committee, Chancery Lane, London, W. C.

Yours etc,

M. F.

January 8.

THE PASTEUR TREATMENT.

To the Editor, The Indian Lancet.

Sir,—The fact that Sir J. H. Thornton, K.C.B., did not have faith in the Pasteur treatment does not in the least change it from being as good as it really is. The cases he referred to when he said that the treatment had brought on the disease itself are those few in which the germ had already gone too far for the treatment to be of any effect.

Owing to my brother being bitten by a mad dog last December I had to attend him up to Kasauli. There was nothing much to do, being winter, so I spent my time in reading. Among the books I came across was one entitled "The Pasteur Institute of India." In looking up the records I noticed that the percentage of deaths in cases treated for bites by mad animals were nil, and that that of deaths in cases for bites by supposed rabid animals was only 1·5 per cent. (The cases Sir James Thornton speaks about come in the latter class.) These records are quite unaccountable if we agree that the Pasteur treatment is a useless and dangerous practice, and also if we take into consideration that the percentage of people who otherwise die of hydrophobia after mad dog bites is about 20 per cent. When a patient gets his discharge certificate he is given a card to post three months the after date of discharge saying in what state of health he is. This is how these percentages are found out.

Another very striking and unaccountable thing I noticed when at Kasauli was that the number of natives undergoing the anti-rabic treatment was very nearly three times that of Europeans. Of course these natives were not all Hindus, but the majority were. This seems to quite upset the opinion of Dr. Lousie Appel, who states that Hindus are prejudiced against the Pasteur treatment owing to their religious traditions.

Yours etc.,

W.

ENEMIES OF SANITATION.

To the Editor, The Indian Lancet.

Sir,—At any time it is difficult to control enormous masses of pilgrims who have no idea of the elements of sanitation or discipline and in these days we have the further fact that in Calcutta the masses have been steadily taught to resent and defy any kind of police control. To make matters worse Calcutta politicians have been busy during the week enrolling bands of young men, of the very type which has already given so much trouble, who are being told off to "Assist" the pilgrims. What that means exactly we are not aware, but as the new "Ardhodya" army has been told that the police and the Sanitary Inspectors are "Natural" enemies may well imagine with what relief Mr. Halliday and Dr. Pearse will see the end of the festival.

Yours etc.,

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A MISSIONARY'S THEORY OF PLAGUE.

To the Editor, The Indian Lancet.

Sir,—A missionary who is not a physician and disclaims any acquaintance with medical or physical terminology propounds a theory of plague which, he says, is based on observation and a little experience, and which he admits may be old though he has not seen it advanced before. Briefly, this is that the germ, or bacillus, of plague is delicate and not long-lived; that it perishes quickly in an element in which it cannot thrive; that the human system is not one of the best habitats for it, and when in a state of health, is often immune against it; that, in the absence of any other habitat in which to increase, than the human system, it would tend to die out; but that it finds some other and more favorable habitat, or habitats than the human system. When a human subject is infected by bacillus bred in such a habitat, he contracts the disease in a severe form and probably dies. If he infects another human being, the latter also contracts the disease, in a somewhat less severe, but still in a severe form, and also not improbably dies, but in its passage through a succession of human bodies the bacillus tends to become more and more attenuated, till at last it ceases to be harmful, or at all events, to be capable of producing a fatal form of plague in man, though it may produce cold and sore glands. The subjects of these remoter infections are, however, rendered temporarily immune by the attack.

Yours etc.,

OBSERVER.

THE COUNTESS OF DUFFERIN'S FUND.

To the Editor, The Indian Lancet.

Sir,—At the Countess of Dufferine's Fund Meeting at Government House the other day the following were present:—Lady Minto, Lady President; the Honourable Mr. Miller, Sir Louis Dane, Sir Herbert Risley, Surgeon-General Bomford; Members Colonel Crooke-Lawless, Honorary Secretary; Colonel Marlow, Honorary Treasurer, and Mr. Buck, Joint-Secretary.

It was arranged to hold a Special General Meeting of the National Association for Supplying Female Medical aid to the Women of India under the presidency of His Excellency the Viceroy at Government House, on Friday, 14th February, at 3-30 P.M.

The main object of the meeting is to present a brief report on the working and progress of the Association and to sanction the enlargement of the powers now possessed by Provincial Branches of the Association in regard to the investment of their own fund.

Attendance will be limited to Life Councillors, Life Members and Ordinary Members of the Association, and applications for cards must be sent to the Honorary Secretary, Countess of Dufferin's Fund, Central Committee, Government House.

Yours etc.,

E. H.

MADRAS MILITARY ASSISTANT SURGEON'S FUND.

To the Editor, The Indian Lancet.

Sir,—Regarding the appeal of certain Military Assistant Surgeons, submitted to the Government of India, some months ago, on behalf of the Madras Branch of the Military AssistantSurgeon's Fund I am informed that they have consented to pay the cost of the reference to the High Court for its opinion, advice and direction as to the closing of the fund and the distribution of the assets; also of reliable actual valuation being made if the Court should require one for the purpose of giving its decision in the matter.

It is to be hoped, adds the informant, that when the decision of the High Court has been obtained the affairs of this institution will be settled as soon as practicable and to the entire satisfaction of all parties concerned. So far, it must be admitted, that the Government of India have behaved very generously towards subscribers.

Yours etc.,

C. W. S.

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EXTERMINATION OF RATS.

To the Editor, The Indian Lancet.

Sir,—The new Society for the Extermination of Rats was inaugurated at a meeting at the Hotel Metropole, London, on the day the last mail left, when people eager to enrol themselves in the new movement listened to a scientific exposition by Sir James Crichton Browne on the need for energetic measures to stamp out these ubiqutious rodents.

"I confess to a deep-rooted and innate antipathy to the rat," said Sir James. "I have an insurmountable objection to it, and indeed there is something in the form, motion, habits, and tail of this rodent that makes it, like the serpent, peculiarly repugnant to human beings."

This human dislike and suspicion were justified, he claimed, by experienced, for no more destructive animal existed. And, worse than all, it added homicidal proceedings to its other criminal propensities and took an active part in the dissemination of disease.

It was now clear that the rat was largely instrumental in the propagation of the plague. It was undoubtedly the main reservoir of the plague poison, and the flea was the channel of its conveyance to human beings, just as the mosquito conveyed malaria.

"If we are to stamp out the plague," Sir James declared, emphatically, "we must stamp out the rat. Our plague experience everywhere should strengthen our resolution that rats must be done away with."

The speaker suggested that in India a price should be placed on rats heads, and referred to the action of the Japanese Minister for Agriculture some years before the war with Russia. Every rat skin offered to the Government was paid for, and when rats had become so scarce that a profitable living could no longer be made from rat-catching, ingenious people took to importing large quantities of rat skins from China and Manchuria, which they continued to sell, quietly, to the Government.

The war came and then the cold season—and the supply department of the War Office issued to the troops fine, soft leather bags or pouches to cover the nose and the ears, a set for each man. These bags were made of rat skin! If, as he was infomed, rat skin, properly treated and prepared, a made fine soft leather, like thin chamois or glove-leather, then some use should be found for it in England.

"But whether the skins be of any utility or not, I plead for the extermination, or at any rate the decimation, of the rat. And I hold that, whatever may be the case on great continents it ought not to be impracticable in this small island. We have exterminated the wolf and banished rabies—small problems, no doubt, compared with, the rat problem, but not witout encouragement. The rat is not wanted, and should go the way of much better species that have perished before it.

"It seems to me that all kinds of warlike operations should be undertaken. The gun, the trap, the ferret, the terrier, each have their place in our strategy; the fumigation of ships by sulphur dioxide is of great importance, and poisons like phosphorus and arsenic are not to be despised. But of late there has been a new and a promising departure in the crusade against the rat.

"A modern St. Patrick or Pied Piper has come to our aid in the shape of Science, and it seems feasible to invoke the aid of the microbe as an auxiliary in our struggle with the rat. Dr. Danysz, of the Pasteur Institute, at Paris, has produced a bacteriological preparation, containing, he alleges, disease germs, to which only animals of the rat genus are susceptible. When the bait charged with this particular virus is eaten by the vermin, they contract a disease from which they die in from eight to fourteen days, and which they can communicate to other rats. It is an epidemic not communicable to man. The virus, moreover, drives the dying rat into the open."

It had been suggested that agricultural clubs should take the matter up, acting simultaneously and on a large scale. This was an excellent idea, said Sir James, but an idea better still was that the whole country should take the matter up—that a national movement against the rat should be inaugurated.

"In this countey, as Sir Lauder Brunton has pointed out, we are not absolutely proof against plague. It has had its tiptoe on our shores several times of late—at Cardiff, Liverpool and Leith—and unless caught immediately might be stalking abroad among us once more. As a precautionary measure we should get rid of rats.

"The programme of those who have called us together I believe, is the extermination of the rat—no quarter to it. If they want a motto they might take it from Hamlet: 'A rat, a rat dead for a ducat.'"

Yours etc.

A. M. S.

Wanted known, that a Dispensary, where all medical and surgical accessories are available has been opened at 3, Wellesley Street, under the name of Ellwood & Co.

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Reviews of Books.

A Manual of Prescribing.—By C.R. Marshall, M. D. Publishers J. and A. Churchill. London.

This admirable little book contains mines of useful information on the principles which underlie the art of prescribing. This book is specially witten for practitioners but students also will find it immensely helpful.

Latin words and phrases used in prescribing are given with their English equivalents. The subject is made practical and the recipes given are typical.

The Pocket Anatomy, 6th Edition, revised and Edited by C.H. Fagge M.B., M.S. Lond; F.R.C.S. Published by Bailliere, Tindall and Cox Price 3/6. London.

This is our old friend, "The Pocket Gray" revised and brought up to date. The whole work seems to have been carefully arranged and many descriptions altered especially in the anatomy of the lower bowels. It is really the sheet anchor of students of anatomy and sets forth in a concise form all the salient points of the subject.

Government Medical Notifications.

INDIA.

Colonel W. G. King, M.B, C.I.E., I.M.S. (Madras), Inspector-General of Civil Hospitals, Burma, is granted privilege leave for three months and in continuation leave out of India on private affairs for four months with effect from the 21st March 1908.

Major E. Wilkinson, I.M.S. (Bengal), Deputy Sanitary Commissioner, Punjab, is appointed to officiate as Sanitary Commissioner, Punjab, during the absence on deputation of Lieutenant-Colonel C. J. Bamber, I.M.S.

Military Assistant Surgeon H. F. Depenning is appointed to officiate as an Agency Surgeon of the 2nd class, with effect from the 4th January 1908, and is posted as Civil Surgeon in the Kyber Agency and Medical Officer, Khyber Rifles.

Major R. F. Standage, Indian Medical Service (Bombay) an Agency Surgeon of the 2nd class, is posted, on return from furlough, as Residency Surgeon in Mysore.

The services of 2nd class Assistant Surgeon Hector Alfred Richardson, Indian Subordinate Medical Department, are placed at the disposal of the Government of Bengal, for civil employment in that Province with effect from the 25th July 1907.

The services of 1st class Assistant Surgeon Charles William Ernest Kerr, Indian Subordinate Medical Department, are placed at the disposal of the Punjab Government, for civil employment in that Province with effect from the 17th September 1907.

The services of 2nd class Assistant Surgeon Percival Beatson Mills, Indian Subordinate Medical Department, are placed at the disposal of the Inspector-General of Agriculture in India for employment at the Agricultural Research Institute and College at Pusa, with effect from the 20th September 1907.

Lieutenant H. Hay Thorburn, I.M.S., assumed charge of the Civil Medical duties of Chakdara on the afternoon of the 19th of January 1908, relieving Captain G. G. Hirst, I.M.S.

BENGAL.

Babu Dina Nath Sanyal, first grade Assistant Surgeon, is appointed, with effect from the 30th December 1907, to the Pilgrim Hospital, Gaya, vice first grade Assistant Surgeon Babu Surendra Nath Neogi, transferred.

Babu Jayanta Rao, third grade Assistant Surgeon, is appointed, with effect from the 26th January 1908, to act at the Charitable Dispensary at Motihari, during the absence, on deputation, of third grade Assistant Surgeon Babu Nirad Chandra Mukharji, or until further orders.

Captain J. McKenzie, R.A.M.C., Regimental Medical Officer, Dinapore, is appointed to have medical charge of the civil station of Dinapore, in addition to his own duties, with effect from the forenoon of the 15th January 1908, vice Lieutenant W. G., Maydon, R. A. M.C.

UNITED PROVINCES.

Civil Assistant Surgeon Shankar Das, attached to the District Hospital, Muzaffarnagar, privilege leave for one month and 13 days, with effect from the 3rd February 1908, or date of relief.

Civil Assistant Surgeon Anant Kumar Bose, on reserve duty, Bijnor, to the charge of the District Hospital, Muzaffarnagar, as a temporary measure.

BURMA.

Senior Grade Civil Assistant Surgeon Maung Tha Noo relinquished charge at the General Hospital, Akyab, on the forenoon of the 14th January 1908 and assumed charge of Special Plague duty at Mandalay on the forenoon of the 22nd January 1908.

Second Class Military Assistant Surgeon E. J. Greson, on transfer to Thaton, relinquished charge of the general duties at the General Hospital, Rangoon, on the afternoon of the 21st January 1908.

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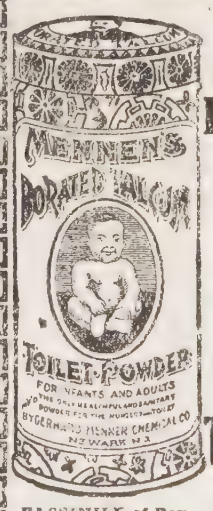

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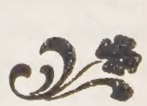

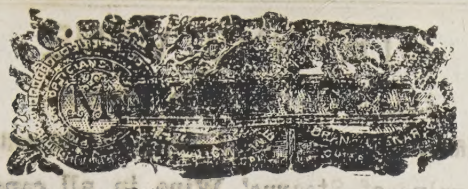

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